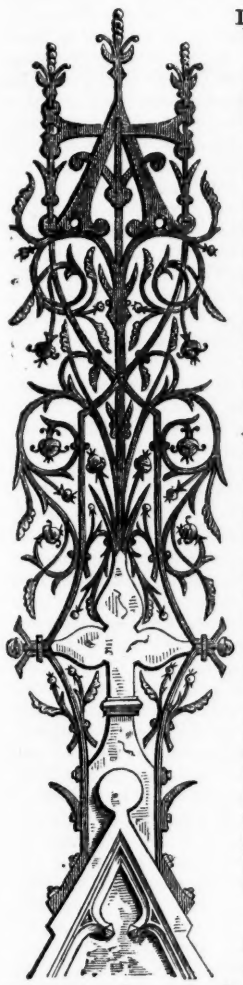
The Builder.

VOL. XXI.—No. 1041.

District Surveyors and the Metropolitan Board of Works.



DISTRICT SURVEYOR of twenty-five years' standing has been suspended by the Metropolitan Board of Works for what they consider non-performance of the duties of his office. The broad outline of the case, so far as we know, appears to be this:—Two small houses, each having two rooms on a floor, front and back, were erected in Stepney, with a large open area behind. When the houses were built the inclosure-walls at the back were put up in such a way as not to give to each house an area of 100 square feet. Section 29 of the Building Act says, it will be remembered, that,—

"Every building used, or intended to be used, as a dwelling-house, unless all the rooms can be lighted and ventilated from a street or alley adjoining, shall have in the rear or on the side thereof an open space exclusively belonging thereto of the extent at least of one hundred square feet."

Complaints were made to the builder of the houses, and, in consequence, he removed the door, on each floor, between the two rooms, and made an opening about 4 feet 6 inches wide, so as, nominally, at any rate, to turn the two rooms into one, "lighted and ventilated from the street." A neighbour wrote letters to the district surveyor on the subject, and ultimately to the Board of Works. A correspondence ensued, the district surveyor replying to the allegation, that the builder had complied with the words of the Act, whatever might be the case as to the spirit of it. Interviews took place, and after a long pause he received intimation one Thursday that, at the meeting to be held on the following day, the Board would proceed to consider a report from their Building-Act Committee, recommending his suspension from office for one month. The Board met, and, in lieu of carrying out the recommendation, suspended him for *three* months: in other words, then and there inflicted on him a penalty equal to one hundred pounds.

We shall not be suspected by any of our readers of attaching no importance to the clause evaded by the owner of the houses in question. The efforts of the *Builder* in the cause of sanitary improvement and good structural arrangements, are too well known, we hope, to permit such a belief. To obtain an open area in the rear of houses for the purposes of light and ventilation, is of the utmost consequence, and the district surveyors are bound to do their utmost to obtain it. But the question here is not what the district surveyor thought right and desired to have, but what he could enforce; and our strong impression, indeed conviction, is that, if the facts be as conveyed to us, it would have been useless to take the case before a magistrate. Magistrates have already stated that although the Act requires the rooms to be lighted and ventilated from a street or alley adjoining (or to have an area at the back), the clause is not contravened if the back room be so lighted and ventilated through the front room. In the case of the District Surveyor of Bethnal-green against Raven, who had not provided the required area at the back, Mr. Hammill, the sitting magistrate, suggested that the builder should remove the partition which divided the front room from the back room on the different floors, so as to meet the requirement of the Act, and this was done. In a more recent case in Marylebone, the district surveyor having summoned a builder for not providing the proper area, the sitting magistrate suggested to the builder to get over it by substituting a glass door for the deal one between the two rooms.

That the means of evasion should exist is much to be deplored; but in the face of these and similar decisions, we can well understand the feeling on the part of the district surveyor in the case which has led to his suspension, that it would be useless and unwise to take the builder before a magistrate,—unwise, because every case in which a district surveyor is defeated, weakens his position.

We are not writing in the interest of the district surveyor. Personally, we have not the pleasure of knowing anything of him beyond the fact of his unquestioned integrity. But in the interest of sound building and the discharge of a public duty, we would remind the Board of Works that the Building Act is not a popular Act; that it is full of difficulties; that the district surveyors are *their* officers; and that it might be desirable rather to counsel and strengthen than hastily to injure and degrade. We happen to know well the difficulties of the position of district surveyors, their intelligence and worth as a body, and their anxiety to discharge properly the duties of their office; and we would express a hope that the Board of Works will not seek to render these more hard to compass than they are.

With reference to the prevention of the occupation of underground rooms, it is much to be regretted that the Metropolis Local Management and Amendment Act, so far from rendering the existing legislation more effective, is calculated to keep it inoperative. The Local Management Act, setting forth that no underground room or cellar may be "occupied separately as a dwelling" unless it possesses certain described requisites, calls upon the district surveyors to report periodically, without fee, to the Metropolitan Board and to the vestries "all cases in which rooms or cellars are occupied contrary to this enactment" in their several districts. It has been shown again and again by published statements, memorials, and otherwise, that it is aside the duties of a district surveyor, and, indeed, quite out of his power, to obtain evidence as to what underground rooms are "occupied separately" as dwellings, and that the duty involved should at any rate be divided, the parish authorities obtaining, by means of the police or otherwise, evidence of the occupation, and the district surveyor then reporting whether or not the rooms so occupied are in accordance with the requirements of the Act. So far, however, from the Amendment Act remedying the error, as was proposed by the Metropolitan Board in their draft Bill, it confirms the original arrangement, with the specific instruction, that the district surveyor shall report "in the months of June and December in each year, and at all other times when he shall be required so to do." The result must be, that the section will remain inoperative. A district surveyor can of course report, on examination of an underground room, whether or not it possesses the requisites for a dwelling set forth in the Act; but he cannot give sufficient evidence as to the occupancy of the room as a dwelling within the meaning of the Act. The discharge of the first part of the duty, without remuneration, falls with severity on the surveyors, especially in the central districts, where many underground rooms are inhabited, and the surveyor's receipts for his ordinary structural duties are very small; but the efficient discharge of the latter part is out of their power.

NEW MATERIALS FOR THE LIFE OF JOHN FLAXMAN, R.A.

MY father brought a full-stored mind to the life of the greatest of English sculptors—John Flaxman. He himself knew Flaxman,—had heard him deliver his lectures before the Royal Academy,—was always a curious inquirer about the ways of the man he admired,—and sat down to his work with a determination to write a life that would live. Nor was he content with such advantages alone. He sat with the great sculptor's sister and sister-in-law (Miss Flaxman and Miss Denman, his nearest surviving relations), talked unreservedly with them about our English Phidias, and made Boswellian notes before them, which he enlarged at home. He questioned Flaxman's great rival in his latter life—Sir Francis Chantrey,—and Sir Richard Westmacott, his competitor, in the full swing of his mid-career reputation. Chantrey knew little about Flaxman; but that little, from so observing a man, was all to the point. What Westmacott had to tell (or rather had not to tell) I have often heard my father relate with a smile, always ending in a hearty laugh at Westmacott's idea of the wants of biography. "I called on Westmacott, in South Audley-street, by appointment," my father was wont to relate, "note-book in hand. He knew the object of my visit. 'I wish I could tell you,' said Westmacott, 'anything about Flaxman that would be of use to you in your work; but I cannot. Flaxman, sir, lived as if he did not belong to the world; his ways were not our ways. He had odd fashions; he dressed—you know how he dressed; he dined at one; wrought after dinner, which no other artist does; drank tea at six; and then, sir, no one ever found him in the evening parties of the rich or the noble: he was happy at home, and so he kept himself. Of all the members of the Academy, the man whom I know least of is Flaxman.' In this way," my father was wont to observe, "Westmacott continued to talk to me about Flaxman. He answered all my questions directly and to the point. You will readily guess," he would end by saying, and with a hearty laugh (still pleasantly ringing in my ears) "Westmacott's notion of the wants of biography. I thanked him and withdrew. I had obtained, unknown to Westmacott, the very information I wanted from him."

When Chantrey was little or nothing more than a raw Derbyshire lad in London, working in clay, with slender prospects of translating his labours into marble, he went to the Royal Academy exhibition, then in Somerset House, and made his observations, catalogue in hand. When Chantrey approved, he was always emphatic in his approval:—

"Fools admire, but men of sense approve."

Against Flaxman's statue of Sir Joshua Reynolds, now in St. Paul's, then only a small-sized model, he has written "fine," in large blacklead letters. The influence of this very fine statue on Chantrey may be traced in the very best of Chantrey's works.

The story of the noble portrait of Flaxman, by John Jackson, R.A. (lucky man, he painted Canova as well, and for Chantrey), was given to my father by George Agar Ellis, afterwards Lord Dover, in a long memorandum in his own handwriting before me while I write. "In 1824 and 1825 (I think), Mr. Jackson painted for me the magnificent head of Flaxman—probably his finest work—in which the chiaro-scuro of Rembrandt is united with the colouring of the greatest masters in that art. The origin of the painting of this picture is as follows:—At the Academy dinner, in, I think, 1824, I sat at table exactly opposite Flaxman, and was so much struck by the intelligence of his eye, the placid benignity of his countenance, and his venerable head, that I became anxious to see those characteristics worthily represented in painting. In going downstairs, I found myself next to Jackson, and said to him, 'I never was more struck in my life than by the countenance of Flaxman,—you must paint him for me.'" Lord Dover adds,—"After the great success of the portrait of Flaxman, I gave Jackson a commission to paint a head of Chantrey, which was not quite completed when he died."

Flaxman's letters, as autograph collectors know to their cost, are of rare occurrence. Here is one unknown to Flaxman's biographers:—

"To Prince Hoare, esq., Secretary for Foreign Correspondence, Royal Academy of Arts.

[London, 1803.]

DEAR SIR,—The public monuments which I am doing, by order of the King and Parliament, are two; one to the memory of Captain Montague of the ship *Montague*, who fell in the naval engagement on the 1st of June, 1794, in which Admiral Earl Howe commanded, and defeated the French fleet.

The monument is to be insulated, and to stand under an arch in the nave of Westminster Abbey in such a manner that the spectator may walk round it. Captain Montague rests on his sword and stands on a pedestal adorned with naval flags Victory, on a globe behind him, waves over his head the laurel crown which he did not live to wear. On the pedestal is a bas-relief representing the engagement; and a lion on each side of the pedestal guards the basement. On the back of the pedestal, under the trophy, is a bas-relief of prisoners. The statue of the captain is 7 feet 2 inches high, and the whole work will be 20 feet high from the ground.

The other monument is to the memory of Admiral Earl Howe, commander-in-chief in the above engagement, who, having rendered a series of essential and brilliant services to his country, died at home in peace, at an advanced age, beloved and regretted, particularly by the navy. The principal figure is the earl in a naval uniform and boat-cloak, with a telescope in his right hand, resting on a rostrated pedestal, on which Britannia is seated, as the guardian both of herself and trophies. Fame writes his achievements in golden letters on the pedestal. Victory [without wings] leans, like a sister, on the shoulder of Fame, beholding with delight the record of her hero's deeds, while with her other hand she places the garland in the lap of Britannia. The British lion watches by the earl's feet. This monument is to be placed in a distinguished situation in St. Paul's Cathedral. The statue of Earl Howe will be 7 feet 6 inches high; the rest of the work will be magnificent in proportion, both in size and decoration. Concerning the bust of Ceres, of which you inquire, I have seen it and made drawings of it. When entire, it was a statue made of two blocks of marble: including the basket she supported on her head, the whole must have measured 16 feet in height; but as a slight sketch will give a better idea than a laboured description, I have taken the liberty to trouble you with one,* which you may, if you please, send to the President of the Academy of Vienna, with my respectful compliments. The original is quite a ruin, as you will perceive by the sketch. The face is gone. It is 6 feet 10 inches high, from the bottom of the girdle zone to the top of the basket. It is now set up in the Public Library at Cambridge. I have examined the ancient authors, but have found no mention of the statue. Pliny says nothing of it; Vitruvius says nothing of it; nor Pausanias. Strabo says the temple was erected by Ictinus, under Pericles. It is certainly a work of the time of Phidias, of an elevated beauty, and powerful execution, but I think it must be evident that Phidias could not have done all the works attributed to him, unless he had possessed as many hands as Briareus.—I am, dear sir, &c., JOHN FLAXMAN.

There is a passage in my father's Life of Flaxman which the following note from a careful and very severe corrector of slips of the pen in print will serve in some measure to set right:—

To Allan Cunningham, esq.

"Molesey Grove, Hampton Court,
31st March, 1835.

DEAR SIR,—In re-reading your Life of Flaxman, I observe, p. 311, a statement and an anecdote which imply that Flaxman had not left Rome till after the irruption of Buonaparte into Italy. This, I think, must be a mistake. Your book does not, indeed, state the *exact* time of Flaxman's return, but you say that he *went* in the spring of 1787, and remained seven years, this would bring the return to 1794. Now it was not till the autumn of 1795 that Buonaparte's name ever was heard of, and it was not till the spring of 1796 that he crossed the Alps.

If you will look at the passage, you will see that this matter involves inaccuracy, and consequently the credit of the work; and, as *I* cannot account for the mistake or anachronism, I have thought proper to mention it to you, that it may be corrected or explained in a new edition.—I am, dear sir, faithfully yours, J. W. CROKER."

On the receipt of this letter my father wrote to Miss Flaxman, and to what purpose the following answer will fully tell:—

To Allan Cunningham, esq.

"74, Upper Norton-street, April 7th [1835].

DEAR SIR,—I was much surprised at receiving a letter addressed to Miss Flaxman, as it is now nearly two years since I lost that dear and valued friend.

In reply to your letter, I will take upon myself with pleasure to answer your question, as there are few circumstances in my brother-in-law (Mr. Flaxman's) life that I am not well acquainted with, having been his and my sister (Mrs. Flaxman's) constant companion ever since their return from Italy in 1794, till the very last moment of their earthly existence.

In answer to your question concerning the medal,—It was some years after Mr. Flaxman's return from Italy that he first saw the medal of Buonaparte at a friend's house in London, and he always said and thought that the profile of Buonaparte, during his early career, bore a strong resemblance to Augustus Cæsar."

We come now to a grievance of five years' standing. Miss Denman continues:—

"I regret that when you favoured Miss Flaxman and myself with a visit, previous to the publication of my brother's Life, you did not avail yourself of our offer of looking over it, as we could have pointed out to you many errors which are now in it.

I also greatly regret that you made use of any part of those two works from which you have made so many long extracts. They were never intended for the public, and when I showed them to you I most expressly said:—'These are private works; they were made for the gratification of my sister: now they are mine, I hold them sacred, and I only show them to you that you may the better understand the character of the man whose Life you are writing; and I must beg you will not make any other use of them in the work you are now writing, as I do not wish them to be made public. If, at any future time, I may have reason to change my mind, I shall then bring them out in a way most congenial with my own feelings, and in a way that shall not detract from the fame of this great and good man;' and you then promised you would not.

I was so much hurt by this breach of confidence that neither Miss Flaxman nor myself could at that time thank you as we otherwise should have done for your kindness in sending us your little interesting volume.—I remain, dear Sir, yours truly, MARIA DENMAN."

What promise, if any, as Miss Denman alleges, my father made I cannot tell, nor can I see aught but a good service rendered to Flaxman's memory in the way the story of the "two works" is told in Flaxman's Life. My father was never in possession of the volumes; the extracts made were made in Miss Denman's house, and, if my memory does not err, in Miss Denman's presence. The lady, somewhat difficult to please (as I know by my own experience of her when I was honorary secretary to Watson's fine statue of her brother), relented ere long, re-read the Life, and transmitted to its author such queries and notes as occurred to her. These annotations (new and of moment) I purpose giving in a second communication; here, however, I may relate what Stothard told my father, in Chantrey's studio,—"I have read," said Stothard, 6th July, 1839, "your Life of Flaxman, and am much pleased with it." "Mr. Flaxman," Miss Denman records in her own handwriting, "had the highest regard and friendship for Mr. Howard, both as an artist and a man; but his old friend Stothard he could only admire—as an artist." Why? PETER CUNNINGHAM.

OF THE INFLUENCE OF FASHION IN ARCHITECTURE.*

"Fashion constantly begins and ends in the two things it abhors most, singularity and vulgarity. It is the perpetual setting up and then disowning a certain standard of taste, elegance, and refinement, which has no other formation or authority than that it is the prevailing distraction of the moment; which was yesterday ridiculous from its being new, and to-morrow will be odious from its being common."—HAZLITT.

A POPULAR feeling has exhibited itself, far and wide, in favour of an inappropriate adoption of colour in lieu of form. This new feature has been very properly denounced, and termed the piebald, petrified chessboard, or harlequin style, and consists of an indiscriminate employment of black, white, yellow, and red bricks, in arches, bands, diapers, and strings, which have lessened the use of architectural mouldings and other beautiful forms.

The system of rendering buildings all the colours of the rainbow should be avoided, as it entirely destroys form. It has actually been propounded by an architect that "if we wanted colouring in a building, we must give up the mouldings, or *vice versâ*: for his own part, he would always give up the mouldings!" For my part, I would dispense with the *daubing*, and retain all mouldings and architectural forms and features in their integrity. "I believe," says Professor Westmacott, "that colouring sculpture is one of the greatest mistakes that can be committed. Sculpture represents by *form*, and form alone: painting is a distinct art: the mixture of the two, in sculpture proper, is meretricious and false, however pretty some people may think it."

There are many interesting examples remaining of cornices, window-dressings, and chimney shafts, executed in moulded brickwork, in mansions of the time of Henry VIII., William III., George II., &c., well worthy of being studied; and they serve to prove how successfully mouldings can be embodied in brickwork, without having recourse to parti-coloured brickwork to their total exclusion.

Red stocks alternating with grey stocks present no new feature in art: the fashionable use of them, therefore, does not consist in their novel introduction, but the nonsensical abuse of them. The harsh contrast between red bricks and stone has been condemned years ago; and the heavy colour of the bricks is considered unpleasing in itself. The absence of proportion and taste in design at the present time may be readily discerned (without naming individual examples), by reference to the illustrations in the recent volumes of the *Builder*. There are, however, occasionally many beautiful examples of red brickwork to be met with.

I attach great importance to mouldings in fine-art architecture, and consider them to be the alphabet of each period. If colour must be introduced, let it arise out of the blending of natural and varied marbles. Mouldings in this case will be of advantage rather than otherwise: they will serve to separate the prominent coloured marble surfaces from each other, by marbles of various colours as practised by the illuminators during the Middle Ages, and by the Roman architects in their buildings, which were renowned for the many beautifully-coloured marbles employed in their construction. In the Pantheon at Rome, as is well known, the internal entablature is of white marble and porphyry, and the columns are of yellow antique marble, with capitals and bases of white marble: the surface of the piers is also incrusted with thin slabs of marble of various colours.

During the Classic and Mediæval periods, windows, doors, and other openings were suitably and therefore usefully ornamented with mouldings, grouped in cornices, architraves, jambs, arches, &c., forming important features in public and private edifices; but recently it has become the *fashion* to forego these decorations, and to construct buildings with red brick string courses, red brick arches, and to introduce red brick peculiarities of endless unmeaning and incongruous patterns, not limited to secular buildings, but employed in churches, chapels, and other important works. This I consider a retrograde movement, or at least no advancement in the direction calculated to create a new style of architecture. In the course of a few years the atmosphere of London and large cities will so deaden the red and other coloured bricks, that only one dark tint will remain; and in all those buildings in which mouldings and other architectural features have been discarded, naught will remain but the pierced openings of doors and windows. This to me appears so self-evident that too much public attention cannot be directed to the fact. To depend wholly upon colour without mouldings in external brickwork must lead to disappointment; but if when a pointed red brick arch is introduced over a pointed or semi-circular opening, a brick or stone label be put immediately over the red brick, a permanent architectural feature is preserved. In like manner, if red panels be sunk or raised, the forms are retained: not so, however, when they are simply surface shams.

The attempt to force upon the profession and the public polychromatic decorations has not been successful, either in architecture or sculpture. The Classic authorities have been diligently searched, and the beautiful remains of early art closely examined, with a view to prove that

* Flaxman's drawing was engraved by his friend William Blake for the "Academic Annals."

* By Mr. W. Pettit Griffith, F.S.A., read at the Liverpool Architectural Society, on the 14th inst.

Grecian architecture and sculptures were coloured. In after ages the Romans employed more colour than the Greeks: there, however, is no doubt that whatever colour the Greeks applied was most sparingly used,—often as a groundwork only for gilding, and without detriment to their beautiful forms; and that the idea (promulgated by some) that Classic edifices were painted with blue, red, yellow, and sea-green colours, and that the statues were of a flesh colour, with artificial eyes, red eyebrows, red and brown hair, &c., has not been yet satisfactorily proved; and if it ever be substantiated, instead of raising art in the minds of educated persons, it will only certify that the taste of the ancients was not so pure, so simple, and so chaste as its admirers have ever considered it to be.

The treatment of colour in architecture requires great thought and consideration; and although a harmonious whole has to be realized, still the characteristic details and mouldings must be well marked and brought out in agreeable relief. The Greeks treated their sculptures and mouldings with care, and sought by their use to heighten the effect of the architecture, rather than subdue it with heavy colouring: a pleasing light and shade must be always kept in view.

The colour imparted to the interiors of continental buildings by coloured marbles contrasts greatly with the cold Portland-stone tint of St. Paul's Cathedral and many other public buildings in this country. At the period when St. Paul's Cathedral was erected it was incorrectly imagined that the ornamentation of the cupola with mosaic work, similar to the cupola of St. Peter's in Rome, would have been too expensive: resort was therefore had to the perishable substitutes of painting and gilding. This gilding, it appears, was intended only to serve until such time as suitable materials could have been procured. It is much to be deplored that, instead of painting and gilding the interior of the building, sufficient funds were not raised for ornamenting the inside of the cupola with the more durable mosaic work, which would have lasted as long as the building itself, as well as freely to have introduced coloured marbles.

The marbles of Devonshire and the west appear boundless in variety. The isles of Man and Anglesea abound with marbles; also Darington, near Hereford. Considering the beauty and durability of mosaic work, it has been considered a matter of surprise that it should for so long a time have escaped the attention of our native artisans. The marbles and ornamental masonry of the British islands are well worthy of attention.

In a city atmosphere, and with gas in a building, the gilding cannot be preserved beyond a very limited period. Besides, would it not have been desirable, prior to internal painting and gilding, to have thoroughly restored the external decomposed mouldings, broken capitals, and vases, and the statues, which must ere long receive attention? Considering the vitiated atmosphere of London, the exterior stonework of St. Paul's is in an excellent condition; nevertheless, all the joints of the masonry of the pediments are open, and there is much external repair wanting to preserve the building; and funds could not, I feel assured, be expended upon more needful and important matters.

Apart from the question of the durability of the painting and gilding in St. Paul's, it is but fair to state that the latter have been accomplished with great care and in excellent taste, and with every attention to the development of the mouldings and ornamentation.

It has been recently pronounced *ex cathedrâ*, that principles never change: there may be new combinations, new excellencies, new paths, new powers; but there can be no new principles in art. This is no doubt correct, and should be borne in mind, although it would be more instructive to art-students if these principles were more clearly enunciated.

Sir Christopher Wren's idea of principles seems to have been limited to the "five orders." "It" [architecture], says Wren, "aims at eternity; and therefore is the only thing incapable of modes and fashions in its principles (the orders), which are founded upon the experience of all ages."

Art-principles, unless founded upon nature, are ever varying: the most eminent modern architects never agreed as to the proportions of any one of the five orders: in the height of the Tuscan column alone they differed by three modules.

In the works of Nature there is not any portion of the framework, however minute, which does not appear to have been developed upon perfect principles: in fact, the more we study each object, let it be either animal, vegetable, or mineral, the more there is to admire; each part being in its place, and having its duty to perform; all interference with regularity being occasioned through abortions or degenerations, forming the exception and not the rule.

There is some satisfaction in studying the works of Nature: the truths we learn are eternal; but in architecture new influences create new fashions, and a style which has occupied hundreds of years and the skill of the greatest artists to perfect, is liable to be spurned in a moment for any new and crude style that may be introduced.

The reflection is somewhat humiliating that architecture is amenable to new fashions, like women's costume and fancy dogs. When the painter shadows forth a landscape, and the sculptor idealises, in marble, human life, their works are as truthful in a thousand years hence as they are th's day: no differences of opinion or new fashions can alter them: they represent Nature's works, and are consequently eternal.

Sculpture, however, is sometimes influenced by fashion. In London and elsewhere may be seen statues of eminent men, executed not many years ago, in the Roman costume, with the toga, &c. Our statesmen are now more appropriately represented attired as they lived. I pointed this out in the year 1839, when competing for the Nelson monument. Ridiculous as the figure of George III. may appear in Pall-mall with a pig-tail and cocked hat, still it is a true record of the fashion of the day. All sculptured and other records in stone or metal should be truthfully portrayed, so that future antiquarians and historians can at once fix the period of their execution.

Fashions have generally been produced to conceal defects, or to exhibit some of Nature's gifts; and at an early period so constant were the changes of dress, that Andrew Borde, in his first chapter of his "Boke of the Instruction of Knowledge" (1542), prefixed these lines:—

> "I am an Englishman, and naked I stande here,
> Musing in minde what rayment I shal weare:
> For nowe I wil weare this, and now I will weare that,
> And now I will weare I cannot telle whatt."

Ladies' costume and the decorative arts the French may have ably treated, but they are too volatile and too impatient either to practise or to extend pure architecture. However, as regards dress, they appear to possess more correct taste. "A French woman," says Goldsmith, "is a perfect architect in dress: she never, with Gothic ignorance, mixes the orders: she never tricks out a squabby Doric shape with Corinthian finery; or, to speak without metaphor, she conforms to general fashion only when it happens not to be repugnant to private beauty."

The frivolous decorations heaped upon architecture by our Continental neighbours have occasionally influenced our own adaptations. For example, in lieu of the architrave and cornice to windows, a kind of looking-glass frame is often substituted, which, to an educated eye, has a very flimsy appearance. The cornice, or label, over window openings, is useful and ornamental; not so, however, a band of twisted mouldings of uniform projection.

The continuity of horizontal lines in the fronts of street houses has been condemned as monotonous, and gables recommended as being more picturesque. The adoption of the latter would be sacrificing utility for ornament, and re-producing Mediæval London. I pity those who would have to exist in the gables. Gables are fashionable features, and excellent as terminations to Mediæval roofs of churches and chapels. The harmony of many new churches has been sadly marred by breaking up the roofs of the aisles into gablets, rendering them neither ornamental nor useful, except for side galleries, which are universally condemned. Cicero, speaking of the magnificence and expenses of building, says that there certainly ought to be some bounds fixed and prescribed for these things, and those to be according to the rules of moderation; but the measure whereby we are to judge of their being moderate is their subserviency to the ornaments and conveniences of life.

In early times each country appears to have retained its own style of architecture without much change: Egypt and Greece were not subject to the fashionable caprices of modern times. The inventive genius of the Romans was not severely taxed: the three Greek orders, ready made, were found eminently acceptable; and by forming the clumsy Tuscan, and placing the Ionic volutes on the Corinthian capital, the composite was easily fashioned; and hence the production, without much thought, of the memorable *five orders*, destined to create architectural Rome, and to satisfy after-ages with ready-made ideas. Although Sir Christopher Wren considered that architecture aimed at eternity, and was the only thing incapable of modes and fashions; still it is well known that architecture is a progressive art, and the orders in their turn were soon exchanged for the Gothic mode of construction; and notwithstanding it has been termed by the admirers of the Classic styles, "a sort of monster engendered in the night of barbarity; a heterogeneous mixture of confused remembrances, and obliterated traditions;" it is still in vogue, although somewhat marred by a Venetian modification.

Architecture can scarcely be said to have developed itself to any extent in this country until the invasion of William I., in 1066. At this period the Norman, or Romanesque, with its semicircular arches, chevron and other mouldings, became the prevailing style until the twelfth century, when the next general change was effected by the introduction of the Pointed arch; and in the thirteenth century a style of architecture termed Gothic was matured, of a novel and interesting character: the many cathedrals and churches throughout the country that have been spared to us testify to this day its beauty. This new fashion passed through several phases, and was rendered as marked a style as the architecture of Greece and Rome; and, no doubt, many would have desired that it had progressed and become perfected, and remained to us as a national style, and as free from fashionable caprices as Classic architecture had been in early days. But the desire for novelty and new fashions soon ushered in a new mode, which,

> "Like a sick man's dreams,
> Varied all shapes, and mix'd all extremes."
> HORACE.

It assumed the name of Elizabethan architecture, and flourished during the latter half of the sixteenth century. So great was the aversion at this period to regular architecture, that columns, balusters, pedestals, &c., were executed tapering downwards; and every other distortion was cultivated for the sake of variety.

The Roman style was feebly introduced into England in the sixteenth century; and, like all new fashions, was grafted upon preceding styles; and in the seventeenth century it was fully developed by Inigo Jones and Sir C. Wren, and afterwards most successfully practised by Sir W. Chambers.

Early in the nineteenth century the architecture of

> "Fair Greece! sad relic of departed worth!
> Immortal, though no more,"—BYRON—

was imported, and soon became the fashionable style of the day; and although extensively copied and adapted, it never took root or expanded itself. The pedimental roof, however well suited to its native country, is too depressed for a northern climate; and its noble portico, admirably arranged to afford protection from the heat of the sun, is wholly unfit, in this country, at least, to afford shelter from rain. So ill-adapted is the portico to modern buildings, rendering obscure all rooms in contiguity, that it has now become the practice to remove the pediment and insert glass in its coffered ceiling. The coffers, if filled with painted glass ornaments in the centres, would have a good effect.

Among other styles imported may be named the French, Chinese, Moorish, Egyptian, Turkish, Modern Italian, Swiss, &c.; and although occasionally employed, they can hardly be said to have ever become fashionable.

The present fashionable style is a mongrel, polychromatic Italian Gothic, surmounted with an extreme northern roof; and singular enough, that although the intermixture of styles by Inigo Jones and others has been strongly deprecated, the very same corrupt manner of proceeding is still being adopted. Architects must follow the current;—

> "See the right, and approve it too;
> Condemn the wrong, and yet the wrong pursue."

Many distinguished men complain of the present fashion; but follow it they must, or others will do so for them. If the current cannot be checked, and architects must follow it, they can endeavour to guide it; but whatever is done, it is to be sincerely hoped that they will retain the noble and distinguishing parts of buildings; viz, their mouldings; and not sacrifice them for the substitutes of black, red, and coloured bricks.

No doubt, the Venetian Gothic has its beauties, which, if judiciously culled, and due regard to proportion—now much neglected—being paid, with proper and adequate mouldings in red brick, if red brick must be used, and with a moderately high pitched roof, may be reasonably introduced for secular buildings; but for eccle-

siastical architecture, let us have coloured marbles and honest stone; brick and pictorial mosaics being at all times a mean substitute for the latter materials. As has been observed, nobody will be at such an open defiance with common sense as to profess that we should not endeavour to know, and to think of, things as they are in themselves; and yet there is nothing more frequent than to do the contrary; and men are apt to excuse themselves, and think they have reason to do so, if they have but a pretence that it is for God, or a good cause; that is, in effect, for themselves, their own persuasion or party.

Nature, the one and only standard acknowledged by all to be ever perfect and beautiful, never influenced by fashion, each returning year presenting the same forms of foliage and flowers, is yet always acceptable: how far different architecture ever varying, and its disciples always eager for novelties.

The best and surest way of checking an undue fashionable influence in architecture is to properly educate the minds of the people. If this were attended to, the conflicting opinions on taste and proportion would be fewer. How is it possible for any one to decide upon the merits of a building if utterly ignorant of the ordinary rules of art and the grammar of the various styles? In a discussion on an æsthetic principle in decoration, not long since, the speaker remarked "that a correct judgment in the matter of colour consisted in having what was called *an eye for colour;* that such an eye was the gift of the good God; and if it be wanting, no amount of reading or theorizing could supply the deficiency." My opinion is, that not only the eye, but also "that, if the soul be without knowledge, it is not good;" and that the eye, through the mind, is perfectly capable of being educated, and becoming qualified to judge of the relative quantity of each line which should be present in any ornamental arrangement placed before it. The ignorance prevailing on art products at the present period is surprising. As an instance, I was recently examining a public building, when a man of considerable self-importance, who was with me, observed, "Now I call that a pretty thing." I regretted not being able to agree with him in opinion, and urged that the attic story was of an undue altitude, and overpowered the rest of the building. "Well," said he, "that is a mere matter of taste: I don't think so. I have eyes, and can see as well as you."

Professor Faraday,* speaking of deficiency of judgment, truly says "that, in physical matters, multitudes are ready to draw conclusions who have little or no power of judgment in the cases; that the same is true of other departments of knowledge; and that, generally, mankind is willing to leave the faculties which relate to judgment almost entirely uneducated, and their decision at the mercy of ignorance, prepossessions, the passions, or even accident."

The further development of true architecture would be greatly accelerated by instilling into the public mind correct *data* on matters relating to architecture and the fine arts. No freemasonic secrets are required by the profession at the present time: free knowledge of art as well as free trade is a *sine qua non* now-a-days.

The three learned professions, viz., divinity, law, and medicine, justly retain their universally-acknowledged high position; and as a guarantee to the public, all young men have to qualify themselves, and to pass strict examinations, prior to being admitted as regular practitioners.

It has been asked, what is an architect? and the question gave offence; but upon reflection it was not an unreasonable inquiry; especially when it is known that the builder of Osborne was termed an architect,—the sketcher of the 1851 Exhibition was termed an architect, and the engineer of the 1862 Exhibition was called an architect,—and that the *employés* of the late Commissioners of Sewers now acting as surveyors to vestries are often engaged in building schools, repairing churches, &c., and consequently call themselves architects. The inquiry, therefore,—what is an architect? was not altogether out of place.

It is somewhat remarkable that although the utility (and position) of an architect has been publicly doubted; still some members of the Institute of Architects have actually questioned the necessity of an examination; and consequently a *voluntary* architectural one has been instituted. From a cursory glance at the proposed examination papers, I cannot see anything beyond that which is required at an ordinary public school. In the list of books recommended to candidates, the celebrated works of Pugin, Bowman and Crowther, Britton, and others are not named, although Stuart and Revett's works, and Taylor and Cresy's, have not been forgotten.* Proportion, taste, decoration, and other important fine art matters, are not even alluded to; but gardening is not overlooked. These omissions, however, can be easily rectified.

Great credit is eminently due to the promoters of the architectural examination, and no doubt it will be justly valued, and tend to invest the subject with high interest, and raise its dignity as a science. Architecture must be considered by the Institute as a whole;—all unseemly contests for a president favouring either Classic or Gothic, as much as possible avoided; and, to insure this desideratum, perhaps in future it would be better to select an educated nobleman, without bias, as president, rather than a professional man. All divisions tend to weaken, and it would be a public regret and a great evil if any party influence be permitted to prevail, to disturb the growing importance of so valuable and necessary a body as the Institute of Architects. By educating the profession and the public, architecture will become, as of old, less affected by fashionable caprices.

It is neither to be expected, nor necessary, that the public should acquire a practical knowledge of building,—that is the architect's province: for the strength and durability of materials, the public consider the architect responsible, and it is the duty of an architect when he uses perishable materials, such as red bricks and Bath stone, to acquaint his employer of their decaying nature; so that in the event of failure, he will not be answerable.

Cement is often denounced as a sham, but it is a singular circumstance that in London it has been, in innumerable instances, sought to repair and render decent works in which Bath stone has been used.

A good general knowledge of architecture and of the fine arts is most important for the public: it would prevent that disappointment which frequently occurs through a previous non-acquaintance with the appearance of a building until it is erected. The public should be enabled to understand a building and its parts, independently of those alluring and deceitful highly coloured and picturesque foregrounds and backgrounds, which only exist in the mind of the artist hired to depict them.

Fashion in architecture appears to have been entirely overlooked by the enthusiastic writer of the introductions to the Fine Art Department, in the official catalogue of the International Exhibition. Instead of portraying historically the various phases of architectonic art, he pronounces in favour of Gothic as a *panacea* for all requirements. "Gothic," he observes, "is simply the one style which, by the circumstances of its development, has united in itself all the best constructive and the best ornamental forms of the world's inventions in architecture." "It is no fine figure to say, that by ten thousand proofs Gothic has stamped itself on the fair face of Europe as the architecture of Heaven, and the architecture of home. Man's requirements in the province of building do not substantially vary: they are amongst the things that have been, and will be again."

Prior to a new style of architecture being matured, there will be, in my opinion, a revival of the Classic styles. It will be recollected that when Stuart and Revett introduced the Grecian style, it was deemed an act of barbarism to do otherwise than to strictly copy; and it was not considered lawful to introduce even a semi-circular arch in a Grecian building. More freedom of thought is now permitted; and it is probable that the Classic style will be revived. It is now dawning,—and without that strict adherence to precedent as formerly. Wren, in his City churches, handled the Roman style with freedom; but it must be borne in mind, that he was limited to the ritualism of his time. For a font he generally took a baluster, and formed a basin in the top,—but now fonts, sedilіæ, piscinæ, &c., can be designed on Mediæval principles, in the Classic style,—and also properly proportioned chancels, which were not encouraged in Wren's time. I am still of opinion that a higher development of the Mediæval architecture of the fourteenth century is the best suited for ecclesiastical edifices; yet I must admit that the Classical style is capable of further expansion without that strict adherence to ancient models. If architects were now invited to prepare designs in the Grecian style for St. Pancras Church, they would not require such a composition as the present building, viz.,—the Temple of Erectheus, with the Tower of the Winds stuck on the top. As an example of Greek art, no doubt, the edifice is valuable, but no credit is due for originality of design: the power of thought has not been invoked.

"It may be asked," says Mr. Fergusson,* "if I propose to throw over all precedent, and to abandon at once all Grecian pillars and Gothic pinnacles, and all the classical and Mediæval details which now make up the stock-in-trade of an architect, what would I propose to substitute in their place? The answer," he says, "is a simple, though scarcely a satisfactory one, as it is merely—I do not know."

I consider that it is possible to produce a new style of architecture, based upon correct principles and good taste, without aid from either Classical or Mediæval examples; and this can be more easily accomplished by practical demonstration than by lengthy verbal descriptions. Whether the new style, when created, will be worthy of acceptance is another question. At the present time eccentricity is more sought after than originality.

It is to be hoped that the present Venetian-Gothic architecture, with its stunted and twisted columns and other deformities, will not remain in vogue. Parliament wisely rejected it; and as the public become better acquainted with the best productions of art, it will eventually be supplanted by a purer style. The folly of dogmatising in favour of any particular style must be evident when we consider how much architecture is influenced by fashion. It is far better to have a general knowledge of all the various styles and to endeavour to follow nature, and apply her unerring principles to art purposes, than to idolise any one style in preference to another, which in the course of a few years is no longer countenanced, beautiful as it may seem to be; but doomed, at least for a period, to enable some new phase of art (however ridiculous) to exert its influence. The works of nature, on the contrary, as Scripture instructs us, were "done in judgment from the beginning: from the time they were made the parts thereof were disposed, and garnished for ever."

MEETING OF THE ARCHITECTS OF IRELAND.

DUBLIN WINTER GARDEN COMPETITION.

ON Saturday, the 3rd, a special general meeting of the architects of Ireland was held at the Ancient Concert-rooms, for the purpose of protesting against the unjust course adopted by the committee of the above project towards the members of the profession who competed for the intended building; as also to adopt measures either for the re-organization of the Institute of Architects in Ireland, or the formation of some other Association for the better protection of professional interests in future. Mr. Jacob Owen presided. Amongst those present were Messrs. J. H. Owen, W. G. Murray, J. J. M'Carthy, George Ashlin, E. H. Carson, J. M'Curdy, J. R. Carroll, C. Geoghegan, N. Montgomery, J. S. Butler, C. Papworth, J. Bourke, D. C. Ferguson, W. Welland, J. Bell, jun.; J. Maguire, J. C. Burne, J. J. Lyons, W. R. Farrell, C. D. Astley, T. Owen, J. C. Campbell, Franklin, R. Turner, T. Turner, W. J. Barre, Lee, &c.

Letters of apology for unavoidable absence, but cordially concurring in the objects of the meeting, were read by the honorary secretaries from Sir Thomas Deane, Messrs. J. Lanyon, W. Fogerty, Boyd & Batt, &c. &c.

Mr. W. Murray moved the first resolution:—

"That this meeting, having been convened for the purpose of taking into consideration the necessity that exists for some co-operation amongst the architects of Ireland, in order to protect themselves against the injuries inflicted on their profession by the present system of competition, has to express its regret that the recent extraordinary course adopted by the directors of the Dublin Exhibition Palace and Winter Garden Commissioners, whose ostensible object would appear to be the promotion of science and fostering of art, should furnish, as it does, the most striking proof of the urgent demand that presses upon us, individually and collectively, to devise some tangible remedy for the future against inroads so fraught with injury and injustice to our profession."

The present meeting was convened, he said, in consequence of the great abuses which had crept into the system of professional competition existing in public bodies, and more particularly with regard to competition for the building of the New Winter Palace. The commissioners interested in that project had laid down a series of rules and regulations with regard to the fur-

* "Observations on Mental Education."

* Pliny and Strabo are to be studied, but not Herodotus and Diodorus Siculus.

* "Historical Inquiry into the True Principles of Beauty in Art," &c. 1848.

nishing of plans and specifications, which in no one instance were strictly conformed to. There was a general impression amongst the profession that the competition was not carried out in such a manner as the public might expect. In almost every instance the prescribed regulations with regard to the plans and specifications were broken through. For instance, it was said the designs were to be in Indian ink, whereas they were almost all coloured. 35,000*l.* was the sum estimated for the work, and that was broken through on the assumption it was almost impossible to get the building executed for that. It was necessary the profession should adopt some rule with regard to committees who, not thoroughly understanding what they required, met together as judges of competitive plans.

The resolution was seconded by Mr. J. M'Curdy, and carried.

Mr. R. Carrol proposed the next resolution :—

"That this meeting views with extreme regret the course adopted by the directors of the Dublin Exhibition Palace and Winter Garden Company, in withholding, in the recent competition, the two premiums offered by the printed conditions, under the plea of nonconformity of the designs to the said conditions; whilst at the same time the directors utterly ignored their own rules by selecting (without awarding either of the premiums) a design from amongst those submitted which conformed as little as any with the specified conditions; as such a course adopted by the directors of a public company is calculated to break all faith and confidence between the architectural profession and public committees."

As one of the profession, he wished to state that their case against the commissioners was this. It was not to be supposed that twenty-five gentlemen competed, at an expenditure of 150*l.* and 200*l.*, for the mere premiums of 75*l.* and 150*l.* which had been offered. They competed for success. They had not, however, a fair competition. The directors threw all the original designs aside, and received designs on different conditions, increasing the cost by 5,000*l.*, and reducing the amount of accommodation required. The design which was to be carried out, and which Mr. Jones was at present preparing a specification for, would cost 40,000*l.*,—5,000*l.* over the stipulated sum. The accommodation given by the accepted plan was not at all equal to that of some of the designs which the authors were prepared to carry out for 35,000*l.* The new designs had been selected without any competition; and in the preparation of them the directors had the advantage of studying all the other designs for weeks. It was understood that to save outlay the directors adopted this course; but why should twenty-five men sacrifice from 2,000*l.* to 3,000*l.* in preparing their drawings, in addition to an equal sum to compensate them for loss of time? He had spent 80*l.* in the preparation of his design, and another competitor nearly 200*l.* It was not a fair course to adopt towards the competitors. He considered there should be a new competition on the altered conditions.

The motion was seconded by Mr. Jas. Owen, and carried.

It was proposed by Mr. C. Geoghegan, seconded by Mr. E. H. Carson, and resolved—

"That this meeting is of opinion that the directors of the Dublin Exhibition Palace and Winter Garden Company had, in justice, *no power* by their conditions to select any design from amongst those submitted in competition without awarding the premium to such design, and that by so doing they have broken faith with the members of the architectural profession, who competed under the firm conviction that they had a sufficient guarantee in the names appearing in this directory that no *unfair advantage* would be taken of the *unsatisfactory* and *unsafe* terms offered to the competitors—namely, that 'the directors reserved to themselves the right of rejecting all the plans without awarding the premium,' of which this meeting could hardly think it possible they would have availed themselves; and now desires to express its great surprise that the liberal response of the profession generally, by which plans to the value of 2,500*l.* were placed before them, was not deemed worthy of some more unexceptionable termination than the extraordinary compromise entered into by the above body with one of the competitors, the mere anticipation of which result would have prevented *any honourable* man from entering the lists of the competition."

Afterwards, amongst other business, it was proposed by Mr. J. H. Owen, and seconded by Mr. J. J. Lyons, and resolved—

"That for the future protection of the profession at large, the architects do herewith undertake the re-organization and revival of the "Irish Institute of Architects," or the formation of some similar body; and that a committee be now formed to consider as to how this object can best be effected, and report to a meeting of the profession, at which the rules, bye-laws, &c., shall be discussed, and adopted if approved; and that such committee shall consist of the following gentlemen, viz.: — Messrs. J. M'Curdy, N. Montgomery, W. Murray, J. H. Owen, T. N. Deane, J. R. Carroll, E. H. Carson, W. J. Welland, and J. J. Lyons, who shall have power to appoint a secretary and convene a further meeting at such time as shall seem to be desirable."

Thanks were voted to Mr. Jacob Owen for presiding, and the meeting separated.

Messrs. John M'Curdy, E. H. Carson, and J. R. Carroll, acted as honorary secretaries to the meeting.

If the competition in question should have the effect of bringing the architects of Ireland together as a body, it will have effected much good.

THE SANITARY CONDITION OF LANCASHIRE.

DR. BUCHANAN, physician to the London Fever Hospital, and one of the London medical officers of health, has been engaged, since the middle of October, in an official inquiry (following our lead) into the sanitary condition of the principal manufacturing towns under their present exceptional circumstances. His report, unhappily, leaves no doubt that "one of the most lamentable consequences of extreme destitution has made its appearance." Typhus fever has broken out among the population of Lancashire for the first time since 1847. Again it has appeared in the track of want; and, it might have been said, of want especially when combined with a bad sanitary condition.

In Preston there were 227 cases between Midsummer and the end of November; and those attacked died at the rate of 23 per cent. In Manchester there have been 100 cases of the disease in the same period, with nearly the same high rate of mortality among its victims.

Of this phase of the cotton famine we fear we see only the beginning. In the presence of this enemy there must be no relaxation of the work of relief, and an increased attention to the no less requisite work of purification of suspected and infected localities. The great peril is the appearance of a disease that may become epidemic. The "famine fever," if it become epidemic, does not limit its ravages to the localities and population amid which it first appears. In 1846-7 the Irish famine produced our last great typhus epidemic. In those years there were 300,000 cases of the fever in England. In Liverpool alone the number of deaths from this disease was 10,000. It is thus the interest as well as the duty of all classes to help in every way to avert so universal a calamity. The report points decidedly to the necessity of an increase of the allowance per head to support the destitute to the end of the conflict. It is to be hoped, too, that those sanitary measures which we have on former occasions, as now, pointed out to be urgent, will not be neglected.

ART EXHIBITION FOR THE RELIEF OF THE DISTRESS IN THE COTTON DISTRICTS.

Two of the rooms belonging to the Society of British Artists, Suffolk-street, are filled with 782 paintings and drawings, contributed at the instigation of a very influential committee in aid of the Lancashire operatives. Prices are affixed. The majority of the contributors are amateurs, including many known at former exhibitions,—Lady Belcher, Countess Grey, the Ladies Cadogan, Mr. Ruskin, Miss Blake, Mrs. Higford Burr, Mr. Gambier Parry, Lady Eastlake, Mrs. Roberton Blaine, Mrs. Spencer Lewin, and others; but Messrs. Desanges, Cope, R.A., E. W. Cooke, R.A., Mulready, R.A., C. L. Stanfield, R.A., David Roberts, R.A., Millais, A.R.A., Miss Mutrie, G. Lance, and other artists, have assisted with valuable contributions.

Some of the works by less known names require to be looked at with "charity;" but the collection, as a whole, is interesting and gratifying.

THE PHOTOGRAPHIC SOCIETY'S EXHIBITION.

As an art becomes more and more perfected its advances are necessarily slower and less observable. It is not strange, therefore, that in the present exhibition of photographs and daguerreotypes we find few things that might not have been seen last year. Amongst the exceptions we should place the "Instantaneous Views at Naples and elsewhere," by Col. Stuart Wortley (392 and 422); "Photographic Studies," by Vicountess Hawarden (160 and 168), remarkable for delicate gradation and beauty; and some of the large-sized portraits by Mr. Claudet. Col. Wortley, in his views includes in-rolling waves of the sea, the representation of which, sharp and distinct, must indeed have been obtained "instantaneously." Mr. Thurston Thompson sends a number of noticeable photographs after Turner, from paintings as well as from the "Liber Studiorum." Mr. H. P. Robinson has a large picture, "Bringing Home the May" (166); Mr. Vernon Heath, amongst many other things, a remarkable "Study of Ferns" (143); and Mr. J. Bedford, as usual, some charming architectural subjects, both from England and abroad. The London Stereoscopic Society send a large number of works from the International Exhibition, of which there must have been an enormous sale.* One of the smaller rooms contains some very fine works by foreign photographers, not yet catalogued. The large view of sculptured doorway, *gravé sur acier*, by C. Nègre, seems an advance on what has hitherto been done in that direction. The exhibitors are ninety-seven in number.

WINDSOR CASTLE.

REPORT ON THE SEWERAGE, WATER-SUPPLY, VENTILATION, AND SANITARY WORKS.

THE Report on the sanitary condition of Windsor Castle made by Mr. Robert Rawlinson to the Right Hon. W. Cowper, First Commissioner of Her Majesty's Buildings, having never been made public, and containing matter suggestively useful for other places, we are glad to have the opportunity of placing it on record.

Sir,—On the 27th of January, 1862, I received instructions to "examine and report upon the present condition of the drainage of Windsor Castle."

I immediately put myself in communication with Mr. John Turnbull, Clerk of Works at Windsor Castle, and William Starie, Esq., of the Office of Works. In company with these gentlemen I have examined plans of the sewerage, of the basement, of the several floors, and also of the sewers and of the buildings external the outer walls of the Castle. A personal inspection has been made by us, in detail, of the interior of the Castle from the basement to the roofs, visiting every floor and almost every staircase, corridor, and closet within the Castle. We inspected the royal mews and the tenement residences connected with the stables; as also the waterworks.

Plans of the sewers, drains, and of the several floors have been examined during the inspection.

Mr. Turnbull, at my request, has furnished the statistical information as to sewers, drains, water-closets, flushing-tanks, water-works, fire-prevention apparatus, warming apparatus, ventilation apparatus, and the general arrangements for effectively keeping these works in order.

That I may be enabled to give a more comprehensive idea of the sanitary works undertaken and executed, and the natural and artificial difficulties encountered and overcome, it is necessary, briefly, to describe the site on which the Castle stands; and, also, to notice the progressive growth of the Castle from a rude fortress up to its present magnitude.

The site on which the main buildings of the Castle stand is about 100 feet above the river Thames adjoining. The subsoil is chalk.†

The direction of the "slopes" most probably indicates a line of "fault." The steep face or "crag" is to the north and east; the "tail" to the south and west. The valley of the Thames, at Windsor, consists of alluvium, a mixture of gravel, sand, silt, and marl, in various proportions. At or near Frogmore (Frog Mere) the bed of chalk on which the Castle stands passes beneath "alluvium."

Chalk forms, comparatively, a dry and healthy subsoil, situate as at Windsor. The elevation of the main platform on which the Castle stands is also an advantage, offering free play for external ventilation, and a good fall for subsoil and surface drainage.

Edward the Confessor, "for the hope of eternal reward and the remission of all his sins, his father's, mother's, and all his ancestors," granted Wyndleshore (then so called from the winding course of the river Thames), now called Windsor, to the monks at Westminster. William the Conqueror exchanged lands, &c., in Essex for it, and built a house on the hill, which Henry I. converted into a castle, wherein Edward III. was born. About the year 1374, William of Wickham was engaged during a space of fourteen years rebuilding and enlarging Windsor Castle; and from this period to the present date alterations and additions have, from time to time, been executed. Sir Jeffrey Wyatville commenced the most exten-

* The London Stereoscopic Society have published a striking album portrait of Dr. Colenso, whose book is disturbing men's minds just now.

† Chalk absorbs water readily, and is consequently never absolutely "dry:" it is, however, considered a dry subsoil when elevated, as at Windsor Castle.

sive alterations ever made in Windsor Castle, August 12, 1824. Alterations and additions were continued to the end of the reign of William IV., and yet the sewerage and drainage of the Castle palace remained defective. Cesspools, full of putrid refuse, and drains of the worst description existed beneath the basements. The means of warming and ventilation were also of the worst possible character. In the royal apartments small casements in the lower parts of the windows could alone be opened.

Soon after the year 1840, Sir James Clark, on learning from Sir Jeffrey Wyatville the very imperfect state of the drainage of Windsor Castle, reported it to the First Commissioner of Woods and Forests, then Lord Lincoln, and requested that the whole subject of the drainage should be thoroughly investigated. Lord Lincoln saw at once the importance of the matter; and after consulting with His Royal Highness the late Prince Consort, caused examination to be made into the sanitary condition of the Castle. The late Sir Henry De la Bèche, at the request of Lord Lincoln, reported fully on the sanitary state of Windsor town and Windsor Castle. In consequence of this report, Capt. Vetch, of the Royal Engineers, was commanded to cause plans to be made, and to devise and lay out a system of main sewerage and drainage. Under the immediate superintendence of Mr. Turnbull, the great sanitary works at the Castle, of sewerage, drainage, water-supply, warming, ventilating, &c., have been carried out up to this date.

Windsor Castle has been fortunate in its sanitary works and arrangements. Capt. Vetch had probably studied the subject of sewerage and drainage more fully than any other person at the date when he reported. The late Prince Consort, with that enlarged and far-seeing vision of intellect which so peculiarly characterized him, readily mastered the question, and encouraged the efforts of those engaged in the work. Mr. James Simpson, civil engineer, revised the water-supply, and brought his long experience and practical knowledge to bear; giving Windsor Castle and its offices a supply of water, for fire and for sanitary purposes, abundant and complete. Mr. John Turnbull, acting under the superior officers of the Board of Works, but also in constant communication with his late Royal Highness the Prince Consort, has, with untiring labour, worked at the progressive changes which have been undertaken to make Windsor Castle as wholesome and as comfortable for domestic uses as it is extensive and regal for State purposes. Sir James Clark has also persistently attended to all necessary sanitary arrangements; so that this class of works in Windsor Castle has received full attention.

Area.

The main buildings of Windsor Castle, including the courtyards, now cover an area of about twelve statute acres, the basement floors of the upper ward having an area of about 9,500 square yards, or some two statute acres.

	A.	R.	P.
Area of Windsor Castle on plan	12	2	3
Terraces not on plan	1	2	29
East terrace garden.....	3	2	12
Royal mews	2	1	0

The plan of Windsor Castle is in some respects complex, and such as would not be advisable in new buildings. There is, in parts, too much crowding for the most perfect sanitary arrangements, and also too much isolation for the greatest facility of service and convenience. These defects are due, no doubt, to conditions under which the Castle has grown from a comparatively small place of defence, in a barbarous age, by repeated additions, to the largest Royal residence in Great Britain. Some of the walls now in existence were originally built for purposes of defence, and are consequently of great thickness. They are of chalk-ashlar and rubble wall-stone, set in weak mortar, rendering it difficult, in some instances, to make the spaces and rooms within them available for modern uses. This has, however, been done in a very successful manner. Walls have been underpinned and carried to lower foundations. Flues have been formed, and windows and doors have been cut through, sufficient to give security, ventilation, light, and means of communication.

In the earliest days of Windsor Castle sanitary appliances were of the rudest form. Within the walls there were floors of mud, covered with rushes and litter; and externally, heaps of ordure and refuse, but no sewers nor cesspools.

When chamber-floors were first added to Windsor Castle, square "stacks," or vertical openings like large flues, were formed in the external walls to serve as privies.* The position of some of these places can now be seen in the old walls, but their use, for their original purpose, has gradually been abolished, and they have been adapted to more modern requirements. It is not necessary, for the purposes of this inquiry, to fix a date to the first formation of sewers and cesspools. Sewers of a rude construction, square on section, with rubble side-walls, and uneven in line and gradient, were first formed from internal rooms to the external walls; and, for the most part, ending immediately outside the buildings. The accumulation of solid and fluid refuse at the base of the Garderobe Tower and at the outer ends of the sewers in time became obnoxious to sight; and then, first open cesspits, and subsequently covered cesspools, were invented to store and cover over the foul solids, the sewers only removing occasional overflowings of these most dangerous receptacles of filth; sewers and cesspools, and their putrid contents, acting with far more deadly energy on the health of those so unfortunate as to breathe the gases liberated within the buildings than the exposed heaps of refuse of former and ruder periods, when the dung-heaps were washed by the rain, dried by the sun, and the gases were diluted and dispersed by every wind.†

General Sanitary Rules.

There are some general rules necessary to be observed in devising entirely new sewerage works, which cannot now be made applicable to Windsor Castle. I name this because an approval of work done might otherwise be taken to imply that it would be proper to follow, in other cases, that which exists at Windsor Castle, whereas nothing better could, under existing circumstances, be accomplished.

As a rule, sewers should not enter any inhabited building, and all drains should commence at the outside walls, and not traverse the floors of the basement.

All water-closets should be in connexion with an external wall, and have a fixed amount of external light and means for unceasing ventilation.

All rooms, to be inhabited, should have external sunlight.

All sewers and drains should have full and free external ventilation, and gases escaping being made to pass through wood charcoal filters.

Cesspools should not be in existence within or near any dwelling. Manure-tanks can only be allowed for agricultural uses, and these should never have any direct communication with sewers or with house drains.

An elevated site (like Windsor Castle) offers a good fall for water and for fluid refuse, but also offers facilities for the rapid upward flow of sewage gases. It is therefore advisable to break the gradient of any steep sewer or drain at intervals, and cut off by a flap-valve and full ventilation all chance of gases rising from the lower levels to the buildings and rooms at the highest points.

If sewers and drains traverse the basement of any building, such sewers and drains should be absolutely air-tight within the external walls, and no untrapped internal communication should be allowed with any sewer or drain.

The sub-soil beneath any inhabited building should be dry and sweet, because at all times, when the internal temperature of the air is greater than the external temperature, or than the temperature of the subsoil and the sewers, the rooms exert a sort of pumping power; so that a foul sub-soil, in which are foul cesspools, sewers, and drains, may give off gases sufficient to contaminate the entire body of air within any building, if such influence is not made impossible and if a full admission of pure air is not provided for.

A natural watercourse should not be inclosed and converted into a sewer, because the volume and flow of water down a brook or rivulet is very irregular, varying as much as 1 to 300; that is, the dry-weather flow of a stream being represented by 1, the wet-weather flow or "flood" may be represented by 300. Any such culvert must, therefore, be vastly in excess of the requirements for removal of sewage, which is almost a fixed volume; the range of variation being very much less than in a natural watercourse. A small brook may serve to drain the surface and subsoil of several hundred acres of land; a sewer, to remove the entire sewage, surface, and subsoil water of Windsor Castle, only drains, comparatively, a few acres of land. This distinction is of the utmost importance, but was not considered when the large sewer leading to the Thames was made.*

New Sanitary Works.

Previous to the commencement of the works of sewerage and drainage in 1846, the old drains and cesspools were opened out, examined, and their direction, dimensions, and positions laid down on plans. These plans are now in the Clerk of Works' office.

The old rubble-stone and brick drains have been taken up, as also all tainted refuse and adjoining subsoil, and removed.

All cesspools were opened out, and their foul contents carefully disinfected and emptied. The greater portion of such cesspools have, as in the case of old drains, been removed; and where it was not found practicable to take out the bricks and surrounding earth, such cesspools were emptied, cleansed, disinfected by hot limewash, and filled in with lime concrete.

During the last sixteen years about 6,000 square yards of basement and ground-story floors, out of a total area of about 9,500 square yards, have been taken up for the execution of alterations and repairs, to an extent that gives good reason to believe that not one old cesspool nor old drain remains in Windsor Castle where these works have been executed.

Twenty-three cesspools were removed from the upper ward, and twenty-eight from the middle and lower wards, making 51 in all. These cesspools varied in dimensions from 12 feet by 8 feet and 9 feet deep, to 3 feet diameter and 6 feet deep.

The new sewers are of brickwork, for the most part in cement. The work is true, sound, and perfect.

The new drains are formed with vitreous glazed earthenware pipes, only such as were true in form and perfectly sound having been used. The pipes have socket-joints: they are truly laid, and the joints made good with cement. The drain-pipes within the Castle are laid upon a bed of concrete, composed of chalk and "blue lias lime," and are surrounded and covered to a depth of not less than 6 inches with similar material.

The main drain for Windsor Castle is at a depth of about 30 feet (30 to 35 feet) below the level of the ground-floors, and extends from the North Terrace to the "main sewer," near "the Long Walk," and a branch of the main drain extends from the court-yard near the Norman Gate to the East Terrace Garden.

The greatest fall in any drain is 1 in 30; the least gradient, that on the large main, 1 in 460. The gradient of the drain beneath the Castle is 1 in 40. These are good and safe-working gradients.

The work of improvement has been progressive, and is now going on. Money has been voted for some of the works recommended in this report; such, for instance, as the improved outlet to the river from the main sewer. Water-closets and drains are being ventilated, and the several fixed windows remaining in the Castle will be made to open.

Any wells opened up and found to be foul, have been cleansed by removal of the tainted substance, and renewals made with fresh materials.

Foul subsoil has also, in all cases, been removed, and fresh gravel or concrete substituted.

In the numerous structural alterations made in Windsor Castle, the old, large, and open chimney-spaces of Mediæval periods have been made good. All new chimney-flues are lined with fire-clay tubes, flushed and grouted in solid.

To prevent smoky chimneys, about seventy of the most troublesome rooms have been ventilated and otherwise improved.

The Quadrangle, or Great Courtyard, was lowered some 3 or 4 feet by the late Sir J. Wyattville. The area is about 2½ acres. This court has been re-formed, drained, gravelled, and paved, so as to preserve an even, clean, and dry surface.

The Cloisters are the property of the dean and

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* The old name for the rude conveniences found in palaces, castles, and mansions, in England formerly, and on the Continent to this day, is "garderobe." The towers in which such conveniences were placed, tier above tier, with a shaft common to the whole, as at King John's Tower and others in Windsor Castle, and as at Langley Castle, are designated "garderobe towers."

Matthew Paris used the terms "Domicilium necessariorum." The French term "garderobe" is used in old books; as also "privy chamber:" the modern terms are "water-closet" or "closet."

† The dangerous arrangement of sewers, drains, cesspools, and water-closets beneath and in the Castle did not escape the notice of the architect. He is said to have remarked, "I hope it is all right; but there will be a terrible stink some day." The abolition of cesspools and construction of proper sewers and drains did not, at the time, engage the professional attention of architects.

* An independent sewer outlet of comparatively small sectional area may be constructed, with storm-water overflows. This sewer may preserve the sewage from extreme dilution, and carry it to the land for agricultural uses, should such mode of sewage-application be at any time adopted.

canons of Windsor. I did not make any inspection of these, but I was informed that the cloisters had been drained by the late surveyor.

The Military Knights' residences, being private houses, I did not enter to examine them, neither did I inspect the private residences in the Keep, or Round Tower. But I learned that the drainage had been improved.

In these private residences, where the rooms are small, ventilation must, in a great measure, continue to be regulated by the residents themselves.* Perfect sewers and drains, with regular flushing, only constitute parts of a sanitary system necessary to health. Close apartments and rooms, however well sewered and drained, may allow of the ripening of contagious fevers, such as scarlatina, if the air is poisoned by over-crowding, and remains stagnant.

DETAILS OF SEWERS AND DRAINS.

Sewerage and Drainage of Upper Ward, Royal Apartments.

	Length in Yards.
Brick sewer, 4 feet 6 inches by 3 feet; 9-inch work; executed in 1846	421
Glazed earthenware pipe drains:—	
9 inches diameter	1,211
6 do. do.	1,629
4 do. do.	1,056

Executed in 1847-8 and 50.

On this system of drains there are seven man-holes outside the Castle walls for purposes of inspection, ventilation, and cleansing. There are also seventy down-spouts (stack pipes) and soil-pipes acting as ventilators. There is one ventilating grate at end of main drain on the slopes. The sewers can be entered at three points within the Castle. These entrances are most carefully closed and protected. Two ventilating flues, each 14 inches by 9 inches, lined with earthenware, have recently been carried in the Castle wall from the main sewer to the top of the battlements of the Prince of Wales's Tower. These flues were recommended to be put in during my inspection, and are acting perfectly.

Sewerage and Drainage of Middle and Lower Wards (exclusive of the Cloisters).

	Length in Yards.
Glazed earthenware pipe drains:—	
12-inch diameter	94
9 do. do.	584
6 do. do.	748
4 do. do.	312
Brick sewer	120

Executed in the year 1850.

The sewerage and drainage of the Royal Mews were commenced in the year 1850, and completed in 1860.

	Length in Yards.
Brick sewers, old, but adopted:—	
18 inches diameter	229
12 do. do.	382
9 do. do.	282
Glazed earthenware pipe drains:—	
18 inches diameter	483
12 do. do.	173
9 do. do.	314
6 do. do.	928
4 do. do.	342

Sewerage in Home Park, commenced in the year 1845.

Main sewer, 7 feet 6 inches by 5 feet 4 inches	1,617
,, 3 feet 2 inches by 2 feet 2 inches	268
,, 3 feet diameter	342
,, 2 feet 2 inches diameter	313

On the main sewers there are eighty ventilating gratings, and one flap, over sewer end, to prevent any flow of sewage gases up to the Castle.

WINDSOR CASTLE CLOSETS, &c.

The Royal Residence, Upper Ward.

Water-closets in Upper Ward 85

Forty-two of these closets have 2-inch flushing valves and pipes from cisterns to traps: thirty-one have the soil-pipes ventilated: nineteen additional are ventilated by the rain-water down-spouts ("stack pipes"); and twenty-six have Watson's patent double-action syphon ventilators. There are also forty-one additional of these syphon ventilators to the corridors, staircases, and passages. There are ten external water-closets for servants, and four urinals.

The floors of the external water-closets and urinals are laid with glazed earthenware tiles, and the walls are covered with similar tiles to a height of 5 feet. These places are washed with a fire-hose and mops every morning. M'Dougall's disinfecting powder is used as required.

Middle Ward.

Water-closets..... 29

Eighteen of these closets have 2-inch flushing valves and pipes from cisterns to traps: ten have the lead soil-pipes ventilated: five are ventilated by rain-water pipes (stack pipes); and eight are exterior servants' water-closets.

There are five urinals, all external, arranged and managed as previously described.

Lower Ward (exclusive of the Cloisters).

Water-closets..... 25

These have syphon traps: two are ventilated by rain-water pipes, and one has a Watson's ventilator.

The means of flushing the syphon traps of the water-closets is new, having been invented and applied by Mr. Turnbull; and, so far as I know, is peculiar to Windsor Castle. The abundant supply of water enables this form of application to be made. The effect is most beneficial.

In arranging, constructing, and fixing the water-closets, great care has been taken to test all the "stack pipes" by hydraulic pressure. The leaden pipe has been placed vertical, and then filled with water, so as most effectually to prove the soundness of the pipe and its joints before use.

Old and defective forms of water-closets have been removed, and the best and most perfect forms substituted.*

* Means of ventilation may, with advantage, be applied to the stairs and passages of these houses and rooms.

THE TOWN SEWAGE QUESTION.

VERY slowly the important question how to make the sewage of towns useful to the land is assuming a practical shape. The Parliamentary Committee of Inquiry have just made their second report. The Committee, after regretting that the extent of the experiments which have been made is very limited, think, notwithstanding, that the information now obtained will enable the authorities in each town to deal with the sewage in the manner most suitable to the circumstances and the place (we are afraid not); but the Committee desire to add, that the municipal authorities have not at present sufficient powers to enable them to rent or otherwise deal with the lands in their neighbourhood for the most profitable application of the sewage in relief of local taxation.

The evidence asserts that sewage contains the elements of every crop which is grown; and that, as compared with solid manure, there are advantages in the application of sewage to the land. In the application of solid manure loss is sustained by evaporation; but no such loss occurs with sewage. In the application of solid manure to the land, years may pass before its entire productive qualities are all absorbed, causing a loss to the farmer by the slow return of the capital invested in manure; but in the application of sewage, or any liquid manure, no such loss occurs, as every particle of it comes into immediate action on the crop in a day or two.

From Lord Essex's evidence it appears that we cannot fairly test the agricultural value of town sewage by the quantity of solid manure which is found in each ton of this material, for Lord Essex says that the use of sewage manure permanently improves land, its good effects being visible afterwards for years; and the evidence further proves that the sewage has been applied to common grass, Italian rye grass, and the roots and grain crops, with great advantage; and further, that sewage grass has a great effect in increasing the quantity and quality of the milk of cows, as well as improving the condition of the cattle. It is further proved that the use of sewage hastens vegetation.

Next to sanitary considerations, the commercial value of sewage is the most important consideration. It must yield a certain amount in proportion to the outlay, in the same way as other manure; and the agriculturist must have actual worth for his money.

As regards this part of the question, Lord Essex remarks that he applied 134 tons of sewage to each two acres of wheat (67 tons to an acre), and on each acre he obtained an increase of produce worth 3*l.* 1s. 6d. On 35 acres of his meadow grass his lordship applied 600 tons per acre per annum in two dressings, and states that he got an extraordinary crop, such as he never saw before using the sewage.

Mr. Miles says that the sewage of his establishment of thirty persons was passed principally for sanitary purposes over 14 acres of land, arable and pasture. This gentleman and his bailiff, Mr. Foster, say that the value of the 14 acres of land was doubled simply by the application of this manure. This success in Mr. Miles's case is attributed to care which was taken to feed the crops with such moderate supplies of the liquid manure as could be properly absorbed, and no portion was allowed to flow in waste over the surface. To the want of attention in this respect Mr. Miles attributes the want of success at Rugby; and it appears that this is shown to be the case by the result of experiments at the school at Anerley.

The Committee are of opinion that the evidence which has been given fully establishes the fact that sewage is applicable to all crops; and that, if commercial results are sought for, it should be applied in small dressings. If the sewage of our towns and cities were utilized to the best advantage over suitable areas, it is evident that little or no imported or manufactured manures would be used. This would greatly limit the area now supplied by such manures.

Next comes a most important point of the question. Would the application of town sewage to land be likely to cause a nuisance, or be attended with dangerous consequences? On this the Committee report, as the result of the evidence, that sewage in the state in which it is found at the outfall of the sewers, even in the very hottest weather, is very slightly offensive. If applied to the land in this state and in such dressings as can be easily absorbed by the earth, no fear of nuisance need be felt, as the soil posseses the power to deodorise and separate from liquids all the manure which they contain, provided that too large a quantity be not applied; but if the absorbent power of the soil be overtaxed, and very large dressings be applied, a nuisance will be created in the neighbourhood, and injury to wells and running streams would occur. As regards the question whether solid manure can be profitably manufactured from town sewage, the committee are clearly of opinion this cannot be done.

* To be continued.

THE LONDON FIRES OF 1862.

CAPTAIN SHAW, superintendent of the London Fire Brigade Establishment, has just made his annual report to the committee of the Associated Insurance Offices, on the number and causes of fires occurring in the metropolis during the past year.

The document is full of interesting statistics, and ought to aid considerably in bringing about, what we have so often pointed out the necessity for, a change for the better in the highly combustible construction of metropolitan houses, which can be compared to nothing perhaps so fitly, as to the "laid" domestic fire, with its wood next the coal, and its paper next the wood, all ready for the match.

The total number of "calls" on the Fire Brigade in 1862 was 1,543, of which 109 were false alarms; 131 proved to be only chimneys on fire, and 1,303 were fires; of which 33 resulted in total destruction of buildings, &c., 238 in serious damage, and 982 in slight damage. Compared with the preceding year, the fires of 1862 show an increase of 120; and compared with an average of the previous twenty-nine years, the increase is 497. These returns do not include ordinary calls for chimneys on fire, which may be roughly estimated at 3,000. The totally destroyed list (33), compared with that of 1861, shows a decrease of 20; and compared with the average proportion of the twenty-nine previous years, the decrease is 12.

In many cases the imperfect construction of the buildings, and the combustible materials of which they were composed, rendered the extinction of the fires impossible until great destruction of property had taken place.

Referring to the introduction of land steam fire-engines, Captain Shaw states that their superiority has now been proved beyond the possibility of dispute. Many serious and threatening fires have been successfully controlled at an early stage by these engines; one great advantage of which is the diminution of damage by water, which is driven with such force by steam that almost every drop does its duty, and very little is wasted. Telegraphic communication has now been established between the central station in Watling-street and the other principal stations.

The monthly summary of fires shows that there occurred, in January, 106; in February, 112; in March, 92; in April, 111; in May, 106; in June, 92; in July, 121; in August, 136; in September, 119; in October, 86; in November, 100; and in December, 122: total, 1,303. Of this number 494 occurred from unknown causes. Of the rest, 198 happened through the careless use of candles; from gas, 124; from defective flues, 96; from lucifer matches, 15; from smoking tobacco, 24; from sparks from fire, 95; from spontaneous ignition, 17; from overheating stoves, 28; from hot

ashes, 19; from airing linen, 10; from children playing with fire, 27; from intoxication, 9; from naphtha, 2; and the remainder from various causes. Captain Shaw concludes his report with the following comparative table of fires in several of the principal cities in Europe and the United States:—Philadelphia, approximate yearly average, about 363; New York, 370; Berlin, 260; Baltimore, 255; Brooklyn, 140; Hamburg, 244; Boston, 160; Dublin, 120; Charleston, 59; Paris, 244; Manchester, 206; Liverpool, 176; Edinburgh, 101; Birmingham, 95; Bristol, 89; Belfast, 31; and London, 1,303.

THE ARCHITECTURAL ASSOCIATION.

THE ordinary meeting of members was held on Friday evening (the 9th inst.), at the House in Conduit-street, the President (Mr. Thomas Blashill), in the chair.

Mr. S. Wright, 2, Alexander-road, Upper Holloway; Mr. Young Bolton, Angel-court, Throgmorton-street; and Mr. W. Trimmer, Bayswater-road, were, on ballot, elected members of the Association.

The Honorary Secretary read a letter from the Bristol Society of Architects, in answer to a circular from the Association, on the subject of the approaching architectural examination, in which Mr. E. W. Godwin (writing on behalf of the Bristol Society), inclosed a copy of a resolution lately passed by that body to the following effect:—

"That the principles of the scheme for architectural examination as proposed by the Royal Institute of British Architects, are fully recognized by this Society as of the highest importance to the profession, and this Society will endeavour practically to assist by encouraging candidates whenever an opportunity arises."

Mr. L. W. Ridge then read a paper "On Architectural Criticism," in the course of which he observed that as a rule architects did not appear to be amiable critics, as they generally detected faults before conceding virtues. The cold criticism usually given to modern works contrasted strongly with the respectful terms in which they spoke of ancient buildings. This was, perhaps, to be traced to the circumstance that some architects were in favour of some particular style which they considered most suitable to modern requirements; others desired to see nothing beyond the correct reproduction of an ancient style; while others were striving after a Victorian architecture, in which novelty should be the most prominent feature. The mass of the profession, however, took a middle course, and while desiring conformity with the general principles of the school in which they had learned, still wished to see features introduced in harmony with the age in which we live. Such considerations as these were, he thought, quite inapplicable to the buildings of past ages; and thus, however enthusiastically one architect might believe in Early English, he need not necessarily deprecate Perpendicular, nor ignore the beauty and grandeur to be found in works of the Renaissance. Neither was it necessary that the student educated in the acknowledged Classic and Gothic should regard all other styles as rude, barbarous, and unworthy of his attention. It was one thing to be a hearty advocate of a style, another to speak or act as if it alone was worthy of consideration. It was necessary to bear in mind that a style could not be estimated by the state of civilization of those who invented it. The fallacy to which such an assumption might lead was shown by the low opinion in which Gothic architecture was held by generations only just passed away. Having pointed out the peculiarities in the various early types of Eastern architecture and the ornamentation characteristic of Indian and Moorish buildings, as distinguished from the Classic, Mr. Ridge proceeded to refer to the utilitarian and artistic elements as applicable to modern buildings. He contended that many of the objections urged by utilitarians who argued against churches in which the clergyman could not be seen by the whole of his congregation during portions of the service might be met by making the building larger than was absolutely necessary to accommodate the average number of attendants. With regard to grandeur and sublimity of effect, Canterbury Cathedral might, he thought, be quoted as a happy illustration. The choir showed a multitude of shafts and other features of the ordinary scale united in one grand whole, while the nave had the inner mouldings of the piers carried up from the basis to the vaulting with but two insignificant breaks; and then, after a small capital, the line was continued along the ribs, so that this feature alone attracted attention and impressed the beholder with a sense of height. St. Peter's at Rome, where everything was on a gigantic scale, was, however, so harmoniously constructed that many visits were required to realize the intrinsic vastness of its proportions. Although a just sense of proportion was not, perhaps, as generally appreciated by the public as might be expected, ornamental features were universally recognized. Abundance of ornament applied to a building was not without its charms, but the educated eye would always prefer quality to quantity. Ornament, to be duly valued, must be examined at leisure. To be worthy of examination, it must be of novel, not of copied or oft-repeated, design; for if the same forms were constantly found, they ceased to be of use except so far as to tell us the general design, and for that a few bold strokes would serve better than elaborate detail. He feared that much of what he had said was directed rather towards making them better architects than better critics. Love for their art would, doubtless, ever be the best spur to exertion; still in these practical days the criticism which young architects would have to submit to would, no doubt, serve to inspire them to search for the truthful and beautiful in art. By this means alone could they hope to imitate those who had gone before them, and thus alone could they hope to replenish the lamp of all the seven that now burned with the dullest light.

The President, having complimented Mr. Ridge on his paper, observed that what the student wanted was not some one to agree with him, but some one to differ with him and criticize his work. The criticism to which the contributions to the class of design were exposed had, in his opinion, a most salutary effect; and he regretted that a greater number of the members of the Association had not joined the class.

Mr. R. P. Spiers observed that the vast dimensions of St. Peter's, were not at first sight appreciated by the beholder; but this was not to be considered a blemish in the architecture, as a really grand design was rarely appreciated at first sight. This remark, he thought, applied not only to St. Peter's, but to other buildings, such, for instance, as the Arc de Triomphe, at Paris, the enormous proportions of which could scarcely be appreciated without repeated examination. In his opinion, it was most desirable that students should copy the best works as often as possible, so as to become thoroughly familiar with particular styles. In this respect Classic students had an advantage over Gothic, because they were obliged to study the five orders, and copy them over and over again; whereas Gothic students, by adhering to one idea alone, might frequently be led into perpetration of eccentricities. With regard to ornamentation, he did not approve of foliage in panels, unless it was very carefully sculptured.

Mr. North submitted that there ought to be something in the character of a building, either in proportion or general grouping of details, which should strike the beholder as out of the common. In his opinion, the true way to arrive at a new style was to study the old, and then endeavour to give expression to one's thoughts.

The President said he had recently sketched a remarkable doorway in the country, which was an illustration of beauty depending wholly upon proportion, without ornament.

Mr. Mathews recommended careful copying as the groundwork of study. By copying examples of Vitruvius and the best ancient masters, it would be impossible to go wrong.

After some further discussion, a vote of thanks was passed to Mr. Ridge for his paper.

The President announced that the next drawing in the class of design would be a street lamp; and that on the 23rd inst. Mr. J. W. Papworth would read a paper "On the Use of Libraries."

THE WASHHOUSES IN PORTPOOL LANE, GRAY'S INN LANE.

SOME time since we mentioned the risk which then existed of this place being altogether closed, in consequence of the annual loss which had for some years been connected with it. At that time we urged the pressing necessity of keeping the washhouse open. It is satisfactory to find that it is used by a vast and increased number of poor persons of the neighbourhood; and that, in consequence of more economical management and some other causes, it is likely that a more favourable balance-sheet will appear. A vast amount of good is done by the means of cleanliness which are here afforded; and it would be of advantage if the parishes, instead of levying high rates upon such institutions as this, were, in case of necessity, to afford assistance.

It is inconvenient, and almost impossible in thousands of instances, for the working and poorer classes to use the necessary means of cleanliness in their inconvenient homes; and yet, besides attention to proper drainage, ventilation, the cleanliness of the rooms and the skin of the inmates, much depends upon the regular and thorough washing of bed-linen and the various kinds of clothing.

To all, rich or poor, but particularly to young children, attention to the most scrupulous cleanliness is a necessary element of health; and it should never be forgotten that the skin which covers the body has many important uses:—it is the safety-valve of health and life; and so delicate is the machinery by which matter is thrown off, that the ducts and tubes provided for the skin are not more than the 450th part of an inch in diameter, and that on the surface of the body their number has been estimated at many millions.

When the breathing of the lungs is stopped the blood becomes poisoned, the brain loses its power, and the heart growing too weak to carry on the circulation, death ensues; and in the same way, to a certain extent, the purity of the blood and the state of health depend on the cleanliness of the skin and of clothing. Besides this, there are other offensive matters emitted from the skin, which render long-worn body-clothing offensive and unwholesome to the wearer and others. Most persons perspire more in the night than in the day; nevertheless—particularly in the winter time, when drying clothes is difficult—it is by no means uncommon amongst a certain class to use the bed-covering without change for several weeks or even months.

To those who labour, the attention to cleanliness of the skin and clothing is especially necessary.

We all know the difficulties which exist, especially amongst the poor. Every facility that can be afforded in this way must be of much advantage. The public baths, so far as they have been brought into operation, afford the opportunity of personal cleanliness at a comparatively small cost; and the washhouses, also, enable many to wash and dry their clothes, &c., who otherwise would not be able to do so. We therefore trust that if difficulties should again occur in connexion with the Portpool-lane building, in a neighbourhood where it is so much wanted, no measures for closing will be adopted before the circumstances are made known; and, if needful, an appeal be made to the public.

OPENING OF LENDAL BRIDGE, YORK.

LENDAL BRIDGE, over the Ouse, connecting the south-western and north-western parts of the city of York, was formally opened on Thursday in last week, by the Lord Mayor of York; the proceedings terminating with a banquet at the Mansion House. The opening was attended with much ceremony, as appears from the reports in the local *Herald*.

The bridge consists of a single arch of the Tudor style; has a span of 175 feet 2 inches; and is 25 feet in height from the summer level of the river to the crown. As the foundations of the intended girder bridge had been put in in raking lines, the ribs of the present bridge had to follow those lines. The foundations (as proposed by Mr. Page) were extended to within 7 feet of the water towers; and this enabled the contractor to provide for the erection of two lodges, designed by Mr. G. G. Page, son of the engineer, at an estimated cost of 503*l*. In the construction of the bridge six ribs of immense size are tied together with cross girders and braces tied and stayed; there being bearers for the corrugated iron plates which had been prepared for the girder bridge, and which have been used up in the present bridge. The iron contains one-tenth of wrought-iron after Morries Stirling's patent for casting cast-iron with a mixture of wrought-iron. The parapet consists of a series of quatrefoils very much resembling the parapet of the nave of York Minster. The footpaths on the bridge are formed of the Hopton Ward stone, a white paving stone which has been used at the Houses of Parliament. At the margin of the footpaths is a cast-iron curb, which forms the ribs of a gutter as well as a tram. The paving of the carriage-way is of Mount Sorrel granite, of a red colour, approaching to the red porphyry of Egypt. The painting and decorating of the bridge were intrusted to Mr. G. Hartley and Mr. F. Moore, both of York. The general colour is a lightish green grey. The extreme width of the bridge is 37 feet 9 inches; the width of the footpaths 8 feet 3 inches; and the

width of the roadway 21 feet 3 inches. The weight of the bridge is at least 380 tons, and it is believed to be of sufficient strength to carry a railway train.

Messrs. Hawks, Crawshay, & Co., were the contractors, and Mr. Graham the resident engineer.

YORK AND THE RAILWAYS.

WITH reference to the completion of Lendal Bridge mentioned elsewhere, a correspondent from York writes as follows:—You will perceive, Mr. Editor, that by the account in the *York Herald*, Mr. Page has been asked by the directors of the railway company, whether the bridge will carry an engine and train. This points in the right direction;—to a central railway station, between Little Blake-street and Stonegate, by the formation of a square in the front of the Minster, a precedent for which is now in actual operation, viz.,—"The Citadel Station, Carlisle," near Carlisle Cathedral; and when it is considered that the number who travel from Scotland and the North to London in twelve months is upwards of a million—the *Athenæum* gives the number at two millions from Scotland to London in twelve months,—not quite a million going by way of Lancashire;—it ought to be done, and the city of York would receive at least 150,000*l.* a year benefit from the measure. The railway company might erect a large hotel in the square, and it would have the further advantage of their making the present railway station into a goods station, thus saving them the expense of another goods station, and the necessity of going through the ancient city wall, by being obliged to make an arch through the wall opposite Rugier-street.

FALL OF WAREHOUSE, SOUTHWARK.

PART of one of the back warehouses at Messrs. Moser & Sons', of High-street, Southwark, iron merchants, fell late on Monday night. The warehouse consisted of one story only. It is about 80 feet in length, and between 30 and 35 feet wide, and was covered with a corrugated iron roof. The walls are 20 feet high. In the centre of the building, running its whole length, was what is technically called "a horse," which is used for stacking, or leaning bar-iron against on each side of it; and it is stated that, from examination of the *débris*, it appeared that the timbers of this horse had decayed and become unequal to their load, and it fell against the external side wall of the warehouse, which also was loaded with bar-iron; the consequence of which was, that this wall was thrown down, and carried with it the roof. The long bar-iron falling against some other warehouses, across a narrow alley, called Bird-cage-alley, in the purlieus of the Mint, the walls of these warehouses were also much damaged, and the alley completely blocked up. Fortunately no loss of life or personal injury ensued.

NEW STYLE IN GARDENING.

THE introduction of a geometrical style in laying out grounds and gardens has become of late so prevalent that a few remarks may not be unwelcome in the *Builder* on the subject, inasmuch as the lawn and parterre must always have a close affinity to the domestic structure. All that we view daily in the park borders affords pleasing proof of the advance of floriculture and of the increase and improvement in our stock plants; and so far as geometric order is used in details of these grounds, there is nothing to be objected against; but on looking into the "Horticultural Gardens," the great national display in conjunction with the Exhibition, it is impossible not to be struck by the glitter of coloured walks, which have the appearance of red, yellow, blue, green, and other tinted ribbons, cunningly wrought through the intricate flower knots, which form the principal area of the twenty-acre reserve.

That the accuracy of the exquisitely-wrought box borders is laboured and telling, none will deny: these are the works of an artist; and it is equally palpable that the colours of the walks are brilliant. Now, however, winter has set in and the flowers decayed: when the mould is raked and laid by in ordinary for winter, these gaudy bands winding symmetrically over the russet earth wear the appearance of true-lovers' knots; and viewed in connexion with the fountains, balustrades, terraces, &c., make up the total of a formal Dutch garden; but when the flowers were in bloom,—those objects for which such cunning devices were but meant to be the garniture,—what was then the effect of all this polychromatic decoration? Why, simply that it subdued the effect of much natural beauty!

It is not the question whether the South Kensington Garden, surrounded as it is by high buildings and arcades, is the proper site for horticultural growth, since that point has been long conceded. The position, within the metropolis, may be convenient for the exhibition of plants, flowers, and fruits grown elsewhere; but in the midst of smoke it has long ceased to be appropriate for the raising of seedlings or for the conservation of plants.

Some hardy and beautiful flowering shrubs there are, which might thrive and bloom within the imposing boundaries. This is demonstrated by the gorgeous display of the neighbouring Kensington flower walk; but the aspect of this costly inclosure, its nakedness of floral or arborific garniture, leads one to inquire, might it not be improved by the introduction of some well-grown shrubs and trees, which would impart to it more of the hortulan if not sylvan character?

Exhibitions of fruits and flowers occur, perhaps, six or eight times a year; and these, together with the amount collected from Fellows of the Society, possibly do yield a fund sufficient to support the grounds and conservatory. It is more of a public arena for promenade than horticulture.

The broad walks and terraces, as laid down, are, perhaps, essential for the crowds that sometimes frequent the place; and considering the many architectural evidences within and surrounding it, even the winding walks of gaudy colours might be suitable here, however incongruous they might be in a rural garden. Still as a border or setting for rare planted flowers, nothing that could be invented would more effectually mar and neutralize the delicate bloom of nature's tender nurslings. Let them stand, then, as they are,—highly wrought proofs of the gardener's skill; but, in the name of Flora! do not suffer vitreous walks to be farther extended, to the detriment of our best collections.

QUONDAM.

BANKS AND NORTHCOTE.

SIR,—In a note appended to the paper headed "New Materials for the Life of Thomas Banks, R.A.," which appeared in the number of your paper of the 3rd inst., there is a reference made to me respecting the portrait of Mr. Banks painted by Northcote. I wrote immediately to my friend Mr. Ambrose Poynter, the architect; who married the eldest daughter of Mrs. Forster; and in reply I have received from him the following letter:—

"Dover, 8th January, 1863.

My dear Hardwick,—I shall be happy to supply all the information I possess relating to Mr. Banks; but since I can only write by my *womanuensis* (as Tom Hood says) it is difficult for me to put anything into shape. I must content myself with giving you the crude facts, and begging of you to make use of them in any way you please.

The portrait of Mr. Banks by Northcote came into my possession in 1832. I am surprised at Mrs. Forster writing in 1830 (see her letter to Mr. Cunningham in the *Builder*) that she did not know where it was, as she had no difficulty in directing me to the place where it had been put for safe custody, in London, ever since 1814. I received at the same time a portrait of Mrs. Banks, also bearing the name of Northcote; but I am very much mistaken if the final touches, at least, are not by the hand of Sir Joshua Reynolds: if not, it is certainly the best portrait Northcote ever painted. Both these pictures were exhibited at the British Gallery, I think, in 1847. I have also a very beautiful oil portrait of Mrs. Banks, painted by Ozias Humphreys, and another by Northcote of Mrs. Forster: all these were the property of Mrs. Banks.

Of Mr. Banks's own works I have but three,—the angel carved in wood, mentioned by Mrs. Forster as an ornament for her harp; a plaster cast of an alto-relievo, 4 feet 10 inches long by 9 inches wide, representing horses attacked by lions; and a basso-relievo, also cast in plaster, 4 feet 9 inches long by 8 inches wide, representing a Hindoo religious ceremony. It consists of twenty-three figures, and combines a character thoroughly Oriental with a purity of treatment thoroughly Greek. I do not know for what purpose this composition was designed. I have also the drawing mentioned by Mrs. Forster as one of the last ever done by Sir Thomas Lawrence, and the drawing made by Sir Thomas Lawrence when a child, which I presume to be his earliest extant work: it is a street view in Devizes, with the church, done in pen and ink.

The collection of drawings by the old masters made by Mr. Banks was divided by Mrs. Forster between M. de Triqueti and myself, about four years before her death. She took great pride in this collection, and was always ready to exhibit it to any one who professed to take an interest in art. Those now in my possession are about 200 in number, of which about sixty are genuine works of the great masters. Two by Raffaelle were photographed about five years ago for the collection of H.R.H. Prince Albert: the remainder are all good specimens by artists of secondary note in the Italian school. Those belonging to M. de Triqueti, of course, remain in Paris. There is a mask taken from Mr. Banks's face in the Royal Academy. Mrs. Forster desired it should be placed there, and it was sent through me by M. de Triqueti after her death.—A. POYNTER."

I may add that I have in my possession a beautiful work of Mr. Banks's,—a cast in plaster of a female figure kneeling, representing "Filial Piety;" also a basso-relievo in plaster, a very early work of Mr. Banks's, the subject being the Death of Epaminondas. M. de Triqueti, to whom Mr. Poynter refers in his letter, is the eminent sculptor in Paris, who married one of Mrs. Forster's daughters.

PHILIP HARDWICK.

DRAINAGE OF THE WESTERN AREA OF THE METROPOLIS.

WE are very glad to hear from Mr. Thwaites that the Board of Works, in committee on the 13th, agreed to a unanimous recommendation to rescind their resolution of the 29th of June, 1858, directing the formation of deodorizing works at Fulham; and advised that the sewage of the western area be carried into the Low Level sewer, to be conveyed to Barking-creek—a recommendation which there is little doubt will be very generally approved by the Board on (this) Friday.

COMPETITIONS.

Hartlepool Mechanics' Institute.—We understand that in answer to the advertisement which appeared in our columns, eighteen designs were submitted for this building, and that the premium has been awarded to the design bearing the motto "Labor et Spes," by Messrs. Pritchett & Son, of Darlington.

Amicable Society's Schools, Scarborough.—Forty designs were sent in by thirty-three competitors. A design by Mr. Stewart of that town, was selected. Tenders were obtained, ranging from 2,000*l.* to 1,400*l.* A correspondent points out that the committee said in the instructions, "They hoped to keep the estimate within 1,000*l.*" This, however, as times are, is not a very grave charge.

Sheffield.—A correspondent says,—"I beg to hand you one of the curiosities of the old town of Sheffield, which has appeared in the *Independent*:—

'TO ARCHITECTS, MILLWRIGHTS, ENGINEERS, AND OTHERS.

Wanted, Plans, Specifications, and Estimates for the Construction of FURNACES of One Hundred Holes.

Also, for FORGE of Six Steam Hammers, ranging from Five Tons to Ten Cwt., with Boilers and Connexions complete; and ROLLING MILLS, with Engines and Boilers, capable of Rolling about 130 Tons per Month, of Sizes from Six to One Inch Diameter.

Plans and Specifications to be lodged on or before the 31st inst., addressed, ———.

N.B. All Plans will be kept, but only the one adopted paid for.'

I think such men ought to be exposed in your Journal."

Exeter.—The committee for rebuilding the church for the united parishes of St. John and St. George, Exeter, having invited the architects residing in Exeter to send in plans, received five sets, marked "Apta;" "Devoniensis;" a red cross; "Excelsior," and "Desideratum." The plans having been examined, the committee selected the design marked "Excelsior." On opening the envelopes the design was found to be by Mr. W. F. Cross; and the one marked "Apta," selected as second, by Mr. J. Hayward.

ENLARGEMENT OF SUSSEX LUNATIC ASYLUM. At the East Sussex Sessions, at Lewes, the visiting justices of the Sussex Lunatic Asylum, at Haward's Heath, reported that there are now 500 inmates in the asylum, which was still very much over-crowded; and they recommended that the sum of 5,000*l.* be granted, which would be sufficient to afford accommodation for 100 additional patients. This recommendation was carried by a large majority.

THE NATIONAL LIFE AND DEATH RECORDS.

IT is only by personal inspection of our great public and private establishments, that any idea can be formed of the gigantic operations which in this country are being daily carried forward. The Bank of England, the Mint, the Treasury, the Admiralty, the Board of Trade, and Departments of Inland Revenue; the docks, vast stores in vaults and warehouses, immense manufactories, workshops, and many other places, must be examined before any one can form a just idea on the subject.

There is one public establishment the results of which are perhaps more frequently under the public notice than those of any other; and yet its nature and extent are comparatively little known: we refer to the Registrar-General's Office in Somerset House, where the records of life, marriage, and death are carefully arranged in their proper order, and stored away for future use; and whence come those useful health reports, which ought always, and frequently do, direct attention to dangerous conditions which need care, in order to preserve health and prevent the waste of human life.

On entering the western archway of the main entrance to the Quadrangle of Somerset House, after passing the lodge of the porter, comes the entrance to the Registrar-General's apartments. A spacious hall meets the eye. On one side is a small office from which inquiries are answered; and on the other, on a door, are the words—"The Search-room." To this apartment we will return by and by; but first will ascend the noble staircase, noticing the contrivances for hoisting packages and other bulky articles which are constantly arriving; and when we reach the first staircase, we note the elegant finish of the doorways and the extreme beauty of the decorations. The exterior of Somerset House is one of the finest in the metropolis; and although various alterations have been necessary for adapting it to the varied purposes for which the building is now used, the interior is well worthy of the architect. Besides, this staircase has many rare associations, for it was familiar to the lovers of art in the early days of the Royal Academy. In the rooms above, the annual exhibitions of paintings and sculpture were held, until the removal of the Academy to Charing-cross. This way have often passed Reynolds and the contemporary painters of his time, and Dr. Johnson, Burke, Goldsmith, and the brilliant band who were so closely knit together in friendly union. Since then Turner, Etty, Wilkie, and a host of eminent painters, sculptors, and patrons and admirers of art have visited here.

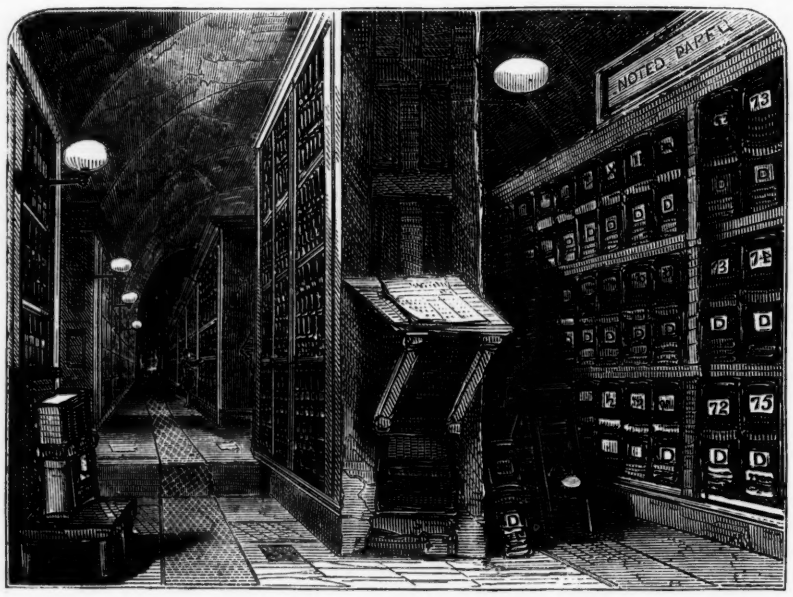
One of the doorways on the first staircase is the entrance to the large and finely-proportioned apartment which was once the council-room of the Royal Academy, and which is now appropriated to the use of the Registrar-General. The ceiling is elaborately decorated with wreaths of flowers, monograms, and other devices. In the centre there was formerly a picture, painted by a good hand; and on the panels of the walls there were coloured designs. These pictures were removed with the other effects of the Academy to Charing-cross.

One of the exhibition-rooms on the next landing now contains a valuable class library of Parliamentary and other works connected with population, its history and conditions, &c., &c. Above the mantelpiece there is an engraving of a well-known painting, showing the visitors and pictures at one of the early Royal Academy exhibitions.

There are other apartments here which were prepared by direction of George III. for the Society of Antiquaries, and which for some time were occupied by the members of that body. On the ceiling are the royal monograms and those of the society. Here the celebrated Swiss calculating machine is now kept; and various reports required for serial and other publications in connexion with the public health, are prepared. In other apartments will be found Sir Horace Mann, Dr. Farre, and other able workers connected with the staff of the Registrar-General.

It is in the rooms above, however, that we begin to form some estimate of the nature of the task of preserving in order the registers of our population. In one part of the premises the registers of births, marriages, and deaths are received from the registrars of the metropolitan districts, and from those in the provincial towns and throughout the country. These are sorted according to their date and the alphabetical running of the names; and, having been carefully tested as to correctness, are arranged on large pages, which are afterwards bound up in the huge volumes which will be found down below. This is a labour which, day after day throughout the year, occupies a number of persons, some of whom work in the large room, lighted from the top, which formerly held the chief part of the pictures of the Royal Academy exhibition.

About half way up this apartment there now runs a gallery, furnished with desks, seats, &c., which is usually occupied by from twenty to thirty clerks, whose labour is to write in a bold and distinct hand the names, date of a birth, and place at which it occurred, together with the number of the original report, and the volume in which it will be found; and the same as to marriages and deaths. These lists are all given to the clerks in alphabetical order, and they are copied in the same rotation on sheets of parchment.



A View in the Vaults.

The chief part of the persons who are here employed are law-writers, who complete their lists with singular uniformity and neatness. Great pains are taken to preserve this uniformity; and the registrars throughout the country are supplied not only with the same description of paper, but also the same kind of ink. With great rapidity those clerks perform their work; as each sheet is completed it is taken away, and in due course of time forms part of one of the volumes contained in the "Search-room."

The large number of persons with what may be considered to be odd names who are born, get married, or die throughout England on the same day, surprises one: even where there are three or more names, the coincidence is extraordinary. As might be expected, the number of John Browns, John Smiths, Jane Robinsons, &c., is great; but one would scarcely expect to find several John Obadiah Browns, and other names quite as uncommon.

This kind of copying is very monotonous; and, we are told, affects the memory, and sometimes the reasoning faculties, of the clerks. In such a completely mechanical manner is the work performed, that one of these men might copy the account of the death of his own wife or child without particular notice.

Descending to the search-room, we find it a very large apartment of great height. In part of the central space on the floor is an inclosed desk, which is occupied by the superintendent of the room. In other parts are tables and seats. Round the apartment run several galleries, which are reached by a spiral iron staircase. There are rows of large thick volumes, which are marked with the various years since the new system of registration was established. They also run in volumes, and are so marked that the marriages can be easily distinguished from the births, and so forth. In this room there are usually a number of people waiting, either for the purpose of searching for registers, or of obtaining copies of such as may be required. The books here, numerous as they are and imposing in size, are, like the volumes of the catalogue in the reading-room of the British Museum, only a reference to the long array of volumes which stand elsewhere.

If the person inquiring knows the date of a birth, the exact name, and the locality in which it took place, the volume in which the original is will be found in a few minutes in the vaults below, and be presently passed by an attendant up an open trap-door into the search-room, when it can either be examined, or a stamped copy of it be made. The cost of a search is small; and for a stamped copy, which is legal evidence in any court of justice, the charge is 3s. 7d.

But the most wonderful part of this office is the vaults, which are of immense length, and which run in rows under the building, and for a considerable distance below the pavement of the Strand. These subterranean chambers have been thoroughly dried and ventilated. They are always kept at a suitable temperature by means of hot-air pipes, and each avenue is lighted with gas. We have seen few things in the metropolis more solemn or imposing than this great library of the dead and the living. Of such great length are the perspectives of the vaults that they seem to vanish at a point; and not only are the walls, as high as the springing of the arches, lined with cases filled with books of record, but along the centre spaces are tall partitions, against which are cases occupied in the same manner as the others.

We notice that the books are bound in different colours,—some scarlet, some green, and the others black. The scarlet-bound volumes contain certificates of births: the verdant colour, chosen for reasons which we are not able to explain, contain the list of marriages; and the sombre black tomes are filled with the lists of the departed. In these books of life and death are the names of princes and peasants, philosophers and fools, the good and the wicked, the men and women of wealth and fashion, and the miserble and half-fed pauper. The records of the Registrar-General, like the grave, level all distinctions; and the death report of the great Duke of Wellington shows of no greater importance than that of Thomas Giles the ploughman, or Private Jones, of a militia regiment. Singularly silent are those vaults themselves: the white walls and the black, green, and scarlet books, the gas-lights not sufficient to illuminate the whole space, present pictures which have an effect upon the mind; and there is heard a dim roar from without, and a noise like distant thunder when the throng of carriages rolls along the Strand.

There is here, too, an apartment in which the registers of the Fleet marriages are kept, and the register-books from many Dissenting congregations of the metropolis. Some of these are old, and amongst the names in them will be found those of Daniel de Foe and John Bunyan.

NATIONAL MEMORIAL OF THE PRINCE CONSORT.—The arrangement that the seven sets of designs for the proposed memorial in Hyde Park should be sent to Osborne, as we mentioned last week, has been changed. It is now directed that the designs are to be sent to Windsor Castle; but the time for doing so is not fixed.

LONDON STREET-ARCHITECTURE.—WAREHOUSE, BOW CHURCHYARD.

MESSRS. TRESS & CHAMBERLAIN, ARCHITECTS.

LONDON STREET-ARCHITECTURE.

WAREHOUSE, BOW CHURCHYARD.

THE warehouse that has just been erected in Bow Churchyard for Messrs. Copestake, Moore, Crampton, & Co., as an addition to their present extensive premises, was commenced in the autumn of 1861, and is now fast approaching completion. Considerable delay was occasioned at the outset in consequence of the discovery of an ancient brick arched gallery, 13 feet wide, 10 feet high, traversing the entire length of the site, and containing 300 yards of solid soil. It is thought that this passage was a portion of a subway for the escape of fugitives from the sanctuary of St. Mary-le-Bow to the river: traces of it are still existing under a warehouse in Garlick-hill.

The clearing out of this gallery (which had been used as a cesspool for centuries) for the purpose of getting a solid foundation for the internal iron columns retarded the works, as it could necessarily only be done at night. It was afterwards still further excavated on either side, and forms a sub-basement at a level of 23 feet below the street paving.

The building consists of sub-basement, basement, ground and five upper floors. The sub-basement is a store for packing cases, &c.: the basement, ground and four upper floors are devoted to the various branches of Messrs. Copestake's business. Additional light to that obtained from the front is provided by a well 51 feet 6 inches by 13 feet 6 inches, extending throughout the floors, and terminating with a curved glass lantern. Over the fourth floor is a fireproof flat, on which are built the kitchen and offices for the accommodation of the entire establishment. The roof is covered with thick zinc plates stamped to a scale pattern, specimens of which were exhibited in the International Exhibition last year. They have been recently used in Paris, but are new to this country.

Access to the new building is obtained solely from the old warehouse, the floors of which are on the same level, and consequently some difficulty has been experienced in the treatment of the window openings in the façade to mitigate the want of height in the floors.

The front is of Portland stone, and the openings are filled in with enamelled bronzed iron sashes from designs furnished by the architects. Peterhead granite and serpentine marble have been used in the small columns and panels of the elevation. The carving has been well executed by Mr. Redfearn: the caps to the granite columns and the cable moulding round the second floor windows deserve notice.

The front arches are carried on large cast-iron columns made by Bunnett & Co. (who also made the sashes), the caps and other ornaments having been cast separately. Mr. Anley is the builder, Mr. Cooper the clerk of the works. The cost, exclusive of fittings, is about 15,000*l*. Messrs. Tress & Chamberlain are the architects.

CHURCH-BUILDING NEWS.

Ketton (*Rutland*).—The chancel of the cross church of St. Mary, Ketton, is about to be restored. A design has been supplied by Mr. Graham Jackson, one of Mr. Scott's earliest pupils. The Rev. F. S. Sutton, a son of the late Sir Richard Sutton, Bart., has just presented a second painted window to this church: it has been inserted in the south wall of the south transept.

Chipping-Norton (*Oxfordshire*). — The new Baptist chapel here has been opened. The edifice, which is in the Gothic style, is erected on what was an open space between the old one and the street, and the latter has been converted into school-rooms. The designs were furnished by Messrs. Gibbs, Thomson, and Colbourne, of Stratford-on-Avon, architects. The building has been carried out under their superintendence by Messrs. Orchard, of Banbury. The total cost of the erection of the chapel, altering the old one, lighting, seating, &c., was 2,300*l*.

Tring (*Herts*).—The church here was reopened for divine service, after a partial restoration, on the 1st instant. A small decorated window in the west end of the north aisle has been brought to light, having been blocked up by a wall and gallery. The restorations have been entirely confined to the interior of the church, the exterior having been left for want of funds. New roofs of oak, of the old examples, have been put on the nave, chancel, and south aisle. That of the chancel has been raised about 5 feet, so as not to intercept with the chancel arch, as heretofore. These roofs have been covered with new lead. The old high-backed seats have been replaced with open benches of wainscot, backs and fronts and next gangways, and bench-ends have been filled with carving. The gangways throughout have been paved with Maw's encaustic tiles. The chancel has been paved with geometrical tiles, made expressly by Messrs. Maw & Co., from patterns taken from old tiles dug up during the excavations in the church. The gallery which formerly blocked up the tower has been removed, and exposes the west window to view, which is a new three-light window, of Ancaster stone, and with Perpendicular tracery, and has been filled with stained fleur-de-lis glass. A new window of Ancaster stone has been put in the east end—a five-light, with Perpendicular tracery, and has been filled with stained glass by Messrs. Clayton & Bell. The subjects are the principal events of the life of Christ, with Old Testament analogies to the same, and is the gift of the Rev. J. Williams, of Park House, Tring. The windows of south aisle and south clerestory have been filled with patent rough stained glass of various shades, intended to subdue the rays of the sun, and is in lieu of blinds, and was put in by the same artists. The whole of the stonework to the interior has been cleaned and restored. The old plastering has been hacked off, and finished in rough stucco. The south doorway has been restored with Ancaster stone and polished Purbeck shafts, and is hung with two new wainscot doors with ornamental hinges. This work is the gift of Mrs. Williams, of Park House, Tring. An organ, built by Messrs. Hill & Son, London, has been placed in the north aisle, raised and supported on brackets. The case was designed by the architect. The organ is the gift of the minister, the Rev. H. A. Harvey. The new pulpit is of oak, with carved panels, and is octagon on plan. The church is heated with a hot-air apparatus, by Messrs. Haden & Sons, of Trowbridge. The carving to seats and pulpit was executed by Mr. Forsyth, of London. The gas-standards and metalwork to altar-rail, &c., were provided by Messrs. Hart & Son, of London. The new font is by Poole & Sons, Westminster. We believe this restoration has cost about 4,000*l*. The whole has been carried out under the superintendence of Mr. W. Slater, architect, London. The contractor was Mr. G. Cooper, of Aylesbury, Bucks. Mr. W. Thompson was clerk of works.

Stourbridge.—The Unitarian Chapel alterations having been completed, the chapel was formally re-opened on the 21st ult. The most noticeable addition to the chapel is the organ niche, constructed at the western end, and into which the organ has been removed. An arch, supported upon enriched piers, with moulded bases and carved stone capitals, forms the opening into the chapel. The choir is arranged in front of the organ, and in a slightly-raised portion. On the outside of the chapel buildings have been erected, comprising a large library and a minister's room, the latter communicating with the pulpit, which is of stained oak. An apparatus for heating the chapel has also been fixed. Much additional sitting accommodation has been provided in the above alterations. The architect was Mr. F. S. Smith, and the works have been executed by Messrs. Allsop & Son.

Bristol.—The Hensman Memorial Church has now been consecrated. It is situate near the parish church of Clifton, being built on land which had formed part of Thorny-close, and belonged to the Society of Merchant Venturers. The edifice contains 400 sittings, is intended as a chapel of ease to the mother church of Clifton, and is dedicated to St. James the Apostle, though designed as a memorial of the Rev. J. Hensman, who has completed the fiftieth year of his ministry at Clifton. The architects were Messrs. Pope & Bindon. The edifice is in the Decorated style, and consists of nave, chancel, and vestry. The length of the nave is 83 feet, its width 33 feet, and its height 57 feet. The chancel is in the form of an apse, 22 feet long, and 23 feet wide. There is a stone bell turret, with two bells, over the chancel arch, and there are a north and western porch. The walls are built of Hanham stone, with freestone dressings; and old red sandstone from Sir William Miles's estate, is introduced in the relieving arches over the windows. The ceiling is of open timber; the wood being stained deal; and the seats are of the same material. The floor of the church is of wood, and there is a crypt under the church 10 feet deep, containing an apparatus for warming the church. The chancel is paved with Moore's encaustic tiles of an ornamental pattern. The shafts of the chancel are of Purbeck marble, and those at the vestry door are of Devonshire marble. These shafts were presented by different donors. The communion rails are of wrought iron, painted and gilded, and were made by Mr. Butcher, from designs by the architects. An arcade runs round the whole of the chancel, supported on marble shafts, carved with natural foliage. The capitals and bosses in the chancel are carved with foliage of different descriptions. On the chancel is represented the passion-flower. All the windows are glazed with cathedral glass of light patterns; and it is intended to fill the chancel windows some day with stained glass. The carved stone pulpit was given by a lady. It is octagonal in form, with Devonshire marble shafts to the panels, which are carved with diaper: the shafts beneath the pulpit are of Purbeck marble. The general contractor was Mr. Brooks, of Bristol; while Messrs. Lewis & Sons, of Clifton, executed the plastering, slating, and painting. The ground around the church was laid out by Messrs. Baskerville, of Bristol. The entire cost of the erection is upwards of 3,000*l*., of which 300*l*. have yet to be provided.

Great Malvern.—A Roman Catholic chapel has been consecrated at Great Malvern. The chapel is in the Gothic style, and was erected at the expense of the pastor, the Very Rev. W. Scott, from designs by Mr. B. Bucknall, of Rodborough, Gloucestershire. Messrs. Perkins & Edwards were the contractors. The structure, which is dedicated to St. Wolstan, consists of a nave, 80 feet by 30 feet, having three side chapels. At present the building is not complete, but will be so when a chancel and other parts are added.

Ross.—The parish church here has been re-opened. The restorations and improvements have been carried out from designs by Mr. J. C. Buckler, of Oxford, architect, who re-erected the spire some years ago. The high pews have been replaced by low open seats of deal, stained and varnished. The floor has been excavated and lowered, and laid with concrete beneath a wood floor; the passages being laid with encaustic tiles from the manufactory of Mr. Godwin, of Lugwardine. Two galleries have been removed. The organ has been improved and repaired, and removed from the tower to a gallery especially provided for its reception, and the accommodation of the choir; and the space in the tower formerly filled by the organ has been fitted with seats appropriated to the children of the various schools of the parish. Fourteen brass standards distributed over the area of the church were furnished from the manufactory of Messrs. Hart & Son, and fixed by Mr. London, of Ross. Amongst the improvements must be noticed the font, a restoration by Mr. Hards, of Ross, from some fragments of an early one which were discovered in excavating the floor of the church. A heating apparatus has been laid. The accommodation now amounts in the whole to at least 1,000. Mr. W. Deeley, of Ross, builder, was the contractor for the works.

Congleton (*Cheshire*).—Astbury parish church has been re-opened for divine service, having for a long time been partially closed for restorations in the interior. All the walls have been stripped of plaster and the stones dressed. The modern gallery, erected by the late Sir Edmund Antrobus, has been taken down, and the organ (also his gift) has been removed to the south side of the church for the present, its final situation not being fixed upon. A wood screen has been erected to form a new vestry, and three memorial windows of stained glass have been placed to the memory of the late Mr. Randle Wilbraham, of Rode Hall. The chancel, with the ancient carved stalls, &c., is restored; as also the panelled oak roof. The new pews are uniformly arranged. The pulpit has been removed, as its old situation obstructed the view of the windows from the nave.

Whickham (*Durham*).—The parish church of Whickham has been re-opened for divine service, after having been closed for a considerable time, during which it has been undergoing a restoration almost equivalent in extent to reconstruction. The whole northern side of the nave and north pier of the chancel arch required to come down; whilst, to compensate for the loss of space by the removal of the galleries, the area of the church required to be extended. The only side on which this could be done was to the northward; and it was determined to erect a second north side aisle, and also a side aisle to the chancel, removing the old vestry to make way for this. Mr. Salvin was appointed architect; and the parishioners in vestry came to the decision that the new pews should be open. An accession of about 200 sittings was thus obtained, every seat being free, and all of one form and pattern. The church is now capable of accommodating 600 persons. Amongst the numerous improvements is a stained window, situate near the south entrance. It is composed of four compartments each containing a group of figures, the subjects being the Five Wise Virgins, Christ re-

buking Martha, Christ raising Jairus's Daughter, and Christ blessing little Children. They are surmounted by a canopy, mixed with foliage decoration, composed of the rose and lily; and the tracery portion is also minutely ornamented. This window is the work of Mr. H. M. Barnett, of Newcastle-upon-Tyne, and is a memorial to the late Miss Simons. On the east gable is another work by this artist, in the form of a wheel window. In the centre of this is the Lamb, surrounded by a circle of radiating branches, set, as it were, with precious stones. Mr. Wailes is at present engaged on another large window for the same church, in memory of Miss Jeffrey. At the west end of the north aisle is placed a stained-glass window. The design consists of two groups—"The Nativity of our Lord," and "The Presentation in the Temple;" above which are canopies. The window is the gift of an artist in the establishment of Mr. Wailes.

Houghton-le-Spring.—A great improvement has been made in the chancel of the parish church by the addition of an inlaid marble reredos, of the diamond pattern, with an ornamented Greek cross in the centre. Its not appearing to have a good finish, remarks the *Gateshead Observer*, induced the rector (who has been at the entire expense) to have a kind of stone frame, with a battlemented top, made for it, and the work was intrusted to Mr. Brookes. The east window is now being filled in with stained glass, by Messrs. Wailes, of Newcastle, the subject being "Our Lord in Glory." The subject includes a large number of figures. Mr. G. Elliott, of Houghton Hall, has been at the sole expense, and the window is to the memory of his daughter, the late Miss E. Elliott.

Silloth.—A new Congregational chapel has been erected and opened at Silloth, according to the *Carlisle Journal*. The building is a brick erection, situate at the south-east of the town, and is capable of accommodating about 250 persons. The chapel is lighted by eight ground-glass windows. The building cost 550*l*.

STAINED GLASS.

Ludlow Church.—Two stained windows have been put up in the east end of the nave of the parish church of Ludlow. Each window is of two lights, and each contains two subjects, viz., in the one to the left, the call of Peter, "Follow me," and Christ's charge to Peter, "Feed my Lambs;" in the one to the right hand, "The Conversion of Saul," and "Paul before Agrippa." Messrs. Edmundson & Son, of Manchester, were the artists.

Cowfold Church (*Sussex*).—This church has recently been adorned with two memorial windows of stained glass. Of that in the chancel, the subjects are three events in the history of Our Lord immediately after his resurrection, viz., His appearing to Mary in the garden; His being known at Emmaus by the breaking of bread; and the incredulity of St. Thomas. This window is in memory of the late Mrs. White, of Wooldringfold, in this parish. The window in the south aisle is in memory of the late Mr. John Grimshaw, also of this parish. The subject of it is "The Ascension."

St. Martin's, Blue Pitts (*near Rochdale*).—Messrs. Edmundson & Son have just completed and fixed two windows in St. Martin's new church. One is in the nave, and put up chiefly at the expense of the sunday scholars connected with the church, to the memory of Job Sheppherd, late a teacher in the school. The subjects are "The Raising of the Widow's Son," and "Christ's Charge to Peter." In the tracery is an angel bearing scroll, with memorial inscription, and texts at bottom. The other is behind the font, and contains "The Presentation in the Temple," and "Christ Blessing Little Children." In the tracery are "The Crossing of the Red Sea," and "Destruction of Pharaoh's Host," as an emblem of baptism. It is the gift of Mr. Ernest Bates, architect of the church, and brother to the Rev. Joseph Bates, the incumbent.

SCHOOL-BUILDING NEWS.

Notting-hill.—The new national schools in connexion with St. James's, Notting-hill, have been formally opened by the Bishop of London. The schools were for a lengthened period carried on in Kensington Potteries. The new building is capable of accommodating 450 children. The cost, including the site, has been about 2,100*l*. Of this sum 1,480*l*. have been raised by voluntary contributions.

Manningham.—The foundation-stone of new schools, to be built in connexion with Greenfield Independent chapel, Manningham, has been laid. The site of the proposed building is at the south-east side of the chapel, and comprises an area of 290 square yards, exclusive of the playgrounds. The building will be two stories in height, the principal front and entrances facing Lumb-lane, and will be erected in the Early English style of architecture, corresponding with that of the adjoining place of worship. On the groundfloor there will be a meeting-room for members of the congregation, 35 feet by 20 feet; an infants' school, 35 feet by 16 feet; three class-rooms, and separate entrances and staircases for boys and girls. The upper school-room will be 35 feet by 40 feet, 27 feet 6 inches high to the apex of the roof timbers, which will be of an ornamental character, exposed to view, and stained and varnished. Four class-rooms will be formed at one end of this room, being separated from it by means of low partitioning. The room will be lighted partly from above, but chiefly by four triplet lancet windows; and heated, as also the rooms below, by a hot-water apparatus. The schools will accommodate 350 children. The cost, including fittings, will be about 1,000*l*., towards which subscriptions to the amount of 620*l*. have been promised. Messrs. Andrews and Delaunay are the architects, and the following are the contractors:—Masons, Messrs. Bell & Farnish; joiner, Mr. Gill; plasterer, Mr. Kitchenman; plumber, Mr. J. Schofield; slater, Mr. Hill.

Newhall (*Derbyshire*).—New National Schools, for boys, girls, and infants, with two class-rooms and a residence for the master, are about to be erected near the centre of the village, on a new site, which has been given by the Earl of Chesterfield. The architect is Mr. Nicholas Joyce, of Burton-on-Trent and Stafford.

White Colne.—A new day-school is about to be erected at the above place, under the direction of Mr. Henry W. Hayward, of Colchester. Mr. Rogers, of Earl's Colne, is the builder employed.

DAIRY ARRANGEMENTS.

VALUE OF DRYNESS.

LECTURING recently on cheese-making, Professor Voelcker said, as to the arrangements of the dairy,—You will not expect me, of course, to enter into all those minute practical arrangements which every dairy-woman carries out in the mode best adapted for her own comfort. No very general rule can be laid down as to the best practical arrangement, which is generally that which is the handiest; and as some persons are left-handed, and others right-handed, we cannot lay down invariable rules applicable for each. Follow that arrangement which is most handy for you, would be the general advice I would give to every one. But yet there are some points which admit of a philosophical explanation. For instance, the aspect of the dairy should be north, if possible, for this reason, that a north aspect will bring dry and cold air into the dairy, and keep it cool. But it is not merely the low temperature which a dairy that looks towards the north has, that is so beneficial to the keeping of butter and the making of cheese, but also because such dairies are generally drier. And this is a very important consideration; for, after all, it is not so much the high temperature of the dairy that spoils the cheese, and causes it to become sour and hard, as the condition of the atmosphere as regards dryness or dampness. In a damp or wet dairy you generally find a disagreeable smell all through the place; and in such a dairy it is next to impossible to make first-rate cheese. Whereas dairies that are celebrated amongst the dealers for their high qualities of cheese are generally dry: no matter whether it be cool or moderately warm, it is the damp that spoils the cheese more than anything else.

When going through Cheshire, in visiting the celebrated dairy which produced the prize cheese at the time of the Royal Agricultural Society's meeting, at Chester, at Riddeley Hall, a dairy which is presided over in the most admirable manner by Mrs. Willis, I was much struck in finding a perfectly dry room, and the utmost care used to prevent any damp in any shape coming into the dairy. She would not allow any one to bring the milk in. The servants, by a very simple arrangement, poured the milk through a sort of funnel, connected with a tube from the outside, into the cheese vat. They were not allowed to enter with their wet, and, perhaps, dirty boots, but delivered the milk outside the door. Then all the servants were obliged to wear pattens,—a very excellent plan. You never ought to let any one go in with a damp pair of boots on. If by any accident milk was spilt, there was not a pail of water thrown over it to wash it off, but a dry cloth was used. She assured me that she had never done any scrubbing, except when they made no cheese, and then she would not make any cheese for a week or so, until she was perfectly sure the ground was dry again. In other dairies in Gloucestershire and Cheshire, as well as in Derbyshire too, I found invariably a damp floor in dairies, where cheese fetched from 8*s*. to 10*s*. per cwt. less than good cheese-makers got for their cheese; and I acquired so much practical experience in this matter (I may say so without presumption), that I could venture to make a very good guess as to what description of cheese is made on a particular farm without seeing the cheese, and even without seeing the dairy: you may blind my eyes and lead me into the dairy, but you must not shut my nose. I will not, of course, say under all circumstances that I should be able to smell the good cheese, but I can smell the bad one; and this bad smell, the sour, peculiar, damp, muffy smell (I don't know whether that term is understood), that musty, damp smell is very characteristic of bad cheese. For it is productive of a peculiar kind of ferment, or taint; and we know how very little of such taint is sufficient to give a bad quality to the cheese. Tainted meat can be produced in a damp cellar, even in cold weather, in a short time; whereas when meat is hung up even at a high temperature in a current of air, it will keep in good condition for a long time. This shows the influence of damp upon cheese. We are then, by all means, to avoid a damp place. Sometimes people are afraid that by building their dairies above ground they get them too warm. But it is clear that it is better to have a warmish place than a damp one. If a damp place must be put up with, I would recommend an increase of temperature, thus keeping it as dry as possible by artificial heat.

LECTURES ON SCULPTURE.

AT the London Institution, Professor Westmacott, R.A., is delivering a course of four lectures on "Sculpture." The first lecture, given on the 5th instant, treated of the distinction to be observed in addressing professional and non-professional audiences; theory and practice; importance of a knowledge of true principles to those who would be judges of art; the great object of sculpture among the ancients; classed as mythological or religious, heroic, commemorative, portrait late; the beautiful; review of the more important ancient schools, and notice of their decline. In the second, given on the 12th, the professor spoke of the total change in the art-impulse of the moderns, and its causes; the dark ages of art, and its revival; religious (Christian) sculpture; change to the pseudo-Classical; with a review of the leading sculptors of Italy from the twelfth to the eighteenth century. The third lecture, to be delivered on the 19th, will treat of ecclesiastical and monumental sculpture, as a special phase of art; its great interest, and its practice in England; promise of excellence—how disappointed; decline of fine art incorrectly attributed to the Reformation; false principles introduced in Italy, and their spread throughout Europe. In the fourth, on Monday, the 26th, he will speak of sculpture in the present century and age; future prospects; principles as yet undefined; sentiment, and high motive; imitation; realism and idealism; artifices to attract attention; ignorance of the public, in matters of taste, the opportunity of pretenders, whether artists or amateurs; the remedy; and then give a general explanation of the practice of sculpture, including modelling, carving, moulding, and casting. The lectures are given extempore, with illustrations; by which means the attention of the audience is kept more fully alive than by the reading of a discourse.

RAILWAY MATTERS.

THE site decided on for the construction of the new railway docks at Milford Haven is upon or near the estuary known as Neyland-hill, at its junction with Milford Haven near to the South Wales Railway Company's station of New Milford, at Burton, in Pembrokeshire, with branch railways thereto, and all the requisite pier, dock, and warehouse accommodation. Powers will be taken to adopt both the broad and narrow gauge. The estimated expenses of the docks is 190,000*l*., and of the railways, 30,000*l*.

A new station is being built by the Midland Railway Company at Peterborough. It is being erected on the site of the Crescent Station. There

is likely to be a good deal of work here next summer. A new college and Independent chapel are to be built, as well as new houses; a great deal of building land having been bought by the Freehold Land Society for building purposes. The Great Northern Company are also going to make considerable alterations; having just bought the estate of Mr. Thomas Hill. Fifty-one lots of building land have been sold. The land is situate in Eastgate, where new houses are likely soon to spring up.

The Blyth and Tyne Railway Company have erected a new station adjoining the Tynemouth-road, North Shields, to the east of the House of Correction. The station, which is a brick building, with stone facings, comprises ladies' first-class waiting-room, and a general waiting-room and booking-office.

The traffic receipts of railways in the United Kingdom amounted for the week ending the 3rd of January, on 10,584 miles, to 483,396*l.*; and for the corresponding week of last year, on 10,193 miles, to 460,796*l.*; showing an increase of 391 miles, and of 22,600*l.* in the receipts. The gross receipts on the fourteen principal railways amounted in the aggregate on 7,268 miles, to 380,942*l.*; and for the corresponding week of 1862, on 7,008 miles, to 364,713*l.*, showing an increase of 260 miles, and of 16,229*l.* in the receipts.

ORNAMENTATION OF WINDOWS BY THE TRANSFER PROCESS OF DIAPHANIE.

IN the year 1857, a French lithographic firm first attempted to print, by new processes in lithography, designs in colours sufficiently solid and transparent for the decoration of glass. More recently they have made many improvements. We have before us one of the first sheets printed, and some of the latest; and the advance is striking.

The original method of using these printed designs was to varnish them thoroughly, and affix them to the glass with gum or other cement. The improvement in the application of these designs consists in permanently fixing the coloured surface to the glass, and then removing the paper upon which they are printed. This is now rendered very easy; and glass thus decorated certainly has a very striking effect, while the cost is comparatively trifling.

The work is so simple that it may be done by any person with ease, although the arrangement of the design for a proposed window requires some taste, and a proficient will always excel. Briefly this is the process:—Make a careful drawing of the proposed decoration on paper, or adopt those which are sold for the purpose; marking out where the subject, border, and grounding join with a double line, say about an eighth of an inch in width; then lay the glass upon the pattern, and cement over the double lines a strip of tin foil previously cut to the proper width. Having finished this the coloured surface of the subject, border, &c., is to be cemented to the glass in the places already marked out by the tin foil, which it should overlap a little. Allow the work to harden for a day or two. The paper is then to be damped and rubbed off with a piece of sponge or flannel: a slight coating of the clearing liquid (which is a thin varnish) is passed over the back of the design, and a coating of very hard copal varnish completes the work. In cases where one sheet fills exactly the window, the tin-foiling may be dispensed with. Messrs. Barnard & Son, of Oxford-street, have published a little sixpenny pamphlet, which contains lithographic plates of the designs alluded to, and may be usefully consulted.

SAFETY FOR MINERS.

THE public mind, painfully excited by the numerous recent cases of explosion in coal-mines, attended with more or less fatal results, has within the last few weeks been again shocked by the account of the dreadful catastrophe at Edmund's Main. The so frequent occurrence of this description of accident proves, beyond dispute, that the present means employed to prevent such disasters is, at the best, of very imperfect effect. Every thinking man sitting by his fireside can hardly fail to remember that while he is reaping every benefit to be derived from the invaluable mineral coal, he does this too often at the price of the very lives of the hardy men who toil in the mines to procure it. Is it necessary that this should be so? I will with deference say that it is not. If I may venture to say so, this coal was stored up for the use of man by the Architect of the Universe. Man has been gifted with reasoning faculties which should enable him to counteract the risks which, without due precaution, must occur in gaining coal. Let us see whether he has taken the steps which seem best calculated to ensure safety.

The present, as it appears to me most primitive and most inefficient method, I will endeavour briefly to describe. Most persons are aware that the only access to a mine is down a narrow well or shaft, sometimes of small depth, and sometimes many hundred feet deep. This well or shaft is divided into two parts by a partitioning of timber, from the top to the bottom. The partitioning is technically called "bratticing," a term now almost as familiar to the general reader as mine or shaft. The various partitions in the workings of the mine are also called by the same name, brattice, or bratticing. I will suppose, merely for simplicity, that there is only one "main" or horizontal layer of coal at the bottom of the shaft. From this point at the bottom of the shaft the layer of coal is worked in all directions, often to a distance of many thousand feet from the shaft. The shaft has to provide for the conveyance of mineral to the surface; of men and horses up and down; to find room for the pumping apparatus; and above all is the sole means of ventilation to a series of workings several hundred feet below the surface of the earth, and extending over many thousand square yards. I only propose here to speak of the all-important service—ventilation. One of the divisions of the shaft before alluded to is called the "main," or "down shaft," the other the "upcast" shaft. The "down" shaft is the medium by which fresh air is conveyed from the surface of the earth: the "upcast" shaft is that which conveys from the mine the gases evolved and the vitiated air. In the upcast shaft, generally at or near the bottom, is placed a large furnace, which, by heating and rarefying the air, causes it to rush up that shaft, air from the mine rushing forward to supply its place. The air to furnish this supply finds its way by the down or main shaft; and is compelled, by appropriate bratticing, to traverse the various workings of the mine, and so to ventilate them. But can it be a matter of surprise, when we consider that in a large mine these workings always extend to very many thousand feet of intricate passages, that the power of the furnace is insufficient to keep up a sufficient draught through the complicated workings? I can only say, for my own part, I should be very much surprised if such an arrangement were found to be effective; and I will proceed to give what I am sure would prove an efficient plan. The cost would not be great; but, should the expense of working a large mine be somewhat greater on the following plan, I contend that the miners have a right to stipulate for the greatest amount of safety that can be secured by any reasonable expenditure. An addition of cost to the price of coal, of 3d. or 4d. per ton, would probably amply cover any such expenditure; and I am certain the public would gladly pay that increase of price upon the understanding that the life of the miner was duly cared for.

The plan I suggest is, to employ the shaft solely as a downcast shaft, and to provide for the upcast draught by artesian borings, as nearly as possible at the extremities of the various workings. It is well known that the expense of a boring, as compared with a shaft, is trifling, and would not be very material in the expenditure of a large mine. But the borings once made, I should not rely upon the furnace system for maintaining a draught; but the borings should be in communication with a vacuum, maintained by power, either exhausting cylinders or discs, as found most desirable. The borings should be lined with cast-iron tubing, unless the nature of the strata should be such as to render that course unnecessary. In very many mines one or two such borings, of 12 inches in diameter, would thoroughly ventilate the mine. It is not at all necessary that the exhaust-chamber should be at or near the top of the borings: communications with a central pumping-station may obviously be made by pipes laid on the surface of the ground. I think that the proposed plan is so simple, and so certain of operation, that I sincerely trust some coal-owner will at once give it a fair trial.

The present bungling and imperfect furnace plan, I contend, must be abandoned for the greatly improved one which modern mechanical science has rendered not only possible, but easy of attainment. This is not a subject I have taken up at a moment's notice, but one which has occasionally occupied my attention for some years; and I trust you will think, with me, that the influential columns of the *Builder* cannot be better occupied than by drawing public attention to a plan calculated materially to lessen the risk to which the coal-miner is at present exposed.

A. COTCHETT.

ADULTERATION OF WHITE LEAD.

SIR,—Perhaps many of your readers may not be aware of the extent to which white lead is at present adulterated with barytes,—a very heavy white earth, an oxide of barium. This substance is said to be valuable in the manufacture of fine earthenware; but, in reality, very large quantities are ground in oil, and sold in barrels at about 4*l.* 10s. a ton, as a substitute for, or to mix with, white lead. Some of the painters in Glasgow use it constantly. It is also used by some masons in their putty for joints in ashlar work.

This mineral is extensively wrought at Muirshields, near Lochwinnock, in Renfrewshire; also in the island of Arran. At the former place extensive works are in operation for grinding and bleaching it. The working of this mineral must be a valuable source of revenue to the proprietors, who, of course, cannot help its being put to bad uses. After the paint has been used the adulteration is difficult to detect *at first*, especially in flat tints (that is, when unglazed); but, of course, it *very soon* appears. The presence of barytes in oil paint may be detected by rubbing the paint between the finger and thumb for a little time, when it becomes *granular;* whereas, white lead paint does not. Barytes in place of white lead, and petroleum in place of turpentine, account for low estimates and bad work. By the way, can any of your readers say whether petroleum really discolours light tints, when used in paint instead of turpentine?

DETECTOR.

COTTAGE BUILDINGS AND SANITARY APPLIANCES.

SIR,—At the recent discussion of this subject at the Society of Arts, reported in the *Builder*, Mr. Godwin very justly observed "that if labourers cannot pay such rent as will secure to them a proper home, they are not getting out of the land a proper sustenance and that provision for shelter which they are entitled to receive." Men working on the land are, in many cases, hedged in by the law of settlement to a limited market for their labour; and they are generally men deficient in adaptability of mind and body to take their labour into channels where it would be useful and profitable to others, and consequently more remunerative to themselves; but I cannot agree with the gentlemen who set forth that the labouring classes generally are in this matter powerless to help themselves. There are many thousands of artisans and mechanics earning wages amply sufficient to command suitable and desirable homes. We see large and most magnificent productive establishments, maintained almost wholly by the labouring classes. There are the acres of breweries, the costly spirit palaces: an abundance of capital readily flows to the production of any necessary or luxury for which the labouring population evidence a persistent demand. The mistake appears to be that we are endeavouring to move in this matter without the co-operation of the labouring class. We are repeating the mistake made by Government in introducing sanitary improvements. They sought to force them on the cities and towns before the residents were educated to the want of them; and so excited their strenuous opposition, instead of securing their cordial co-operation.

We are leaving the labouring classes in ignorance on the subject, and endeavouring to prevail on the landlord class to take sanitary improvements to them. What is the consequence? We have not the co-operation of those we are seeking to benefit; and to carry out the matter without their co-operation will be impracticable, however desirable the landlord class may be to accomplish it. They will be over-weighted in the attempt. We cannot estimate the present labouring population of England and Wales at less than thirteen millions. We may estimate their house-rental to be something over one pound per head per annum —say thirteen millions; but half as much again must be paid to cover the interest on the outlay that is required to make their dwellings such as we desire. Instead of an average of five pounds per house, the average must be seven pounds ten shillings per house. The lowest estimate, therefore, we can make of the desired improvements is an annual cost of six millions five hundred thousand pounds. Can we hope that landlords will make this sacrifice for the benefit of the labourers?

It appears to me, Mr. Editor, we must begin at the other end. We must educate to their importance to their class to a knowledge of [illegible]ation, and cleanliness: we well-being of light[illegible]e attendant circumstances that must teach[illegible]nity and fever: we must awaken in lead the desire for health-conducing homes. At present we are endeavouring to call forth a supply of such dwellings artificially. We are seeking to supply the food before the appetite is created. We should create first the desire for homes of this class: from this will grow a demand; and when the labouring class are willing to pay for improved dwellings a rental that will leave a profit to those who supply them, they will not have long to wait for them. At present cottages are let in the country at prices that do not pay for the ground they occupy and the cost of erection. In cities and towns cottage-rental is so irregularly paid, and the damage committed on the property is so continuous and excessive, that the supply has very generally fallen into the hands of needy men, seeking high interest at great risk and great personal trouble.

In my own immediate neighbourhood (Corsham) there are men earning wages ranging from 24s. to 30s. per week, who are content to domicile their families in houses that cost them about 2s. per week; and it is notorious that there are at the present time thousands of mechanics and artisans in this country earning wages ranging from 4s. to 7s. per day, who are content to domicile their families in dwellings which cost them from 2s. to 4s. per week rental, while it is equally notorious that they spend on gin, beer, and tobacco, for their own personal consumption, three times the amount that they devote to secure a dwelling. Wages generally are one-third higher than they were seven years ago. Meat, butter, and cheese, a little dearer; bread and clothes not dearer; neither is more spent on rent. How is the increased rate of wages disposed of? In many cases four days' work instead of six, and more beer. Let us hasten to create amongst them nobler wants; to leave them no longer content with impure air, impure water, badly-cooked food, with a damp, ill-drained, ill-lighted, ill-ventilated dwelling, insuring a debilitated condition of body that will enervate the mind, and beget a craving for stimulants, to purchase which will absorb a large portion of their earnings, leaving the least possible amount for food, clothing, and cleanliness.

There are now many useful publications of which we may avail ourselves in disseminating sanitary truths. One of the most effective of these is the publication you so ably conduct. Beyond this, and to reach a humbler class of labourers, there are household tracts for the people:—"The Worth of fresh Air," "The Use of pure Water," "The Value of good Food," "The Influence of wholesome Drink," "The Value of a well-trained Mind."

When we have taught them the value of sanitary improvements, they will then anxiously desire them: instead of an inert mass which we cannot move, we shall then have three millions of sons of toil ready to co-operate with us.

No emperor has such an army: neither North nor South can command such a phalanx. Effecting it in this way we not only insure the desired result the most certainly, but we shall also elevate the character of the labourer, and prepare him for other desirable efforts. Cultivate first in the labouring classes an appreciation of the benefits, a knowledge of their value, and your humble neighbours will then work out their own improvements more surely, more effectually, and far more beneficially, than we can do for them. With the desire to enjoy, and the capability to pay, the question will become simply one of demand and supply.

JAMES S. RANDELL.

COST OF COTTAGES.

ABSENCE from town has prevented me seeing *The Builder* of last week, in which a letter appeared from Mr. Ross, and in which my name is mentioned.

Not having time to explain as fully as I should wish the motives which instigated me to say what I did at the Society of Arts, I will content myself by stating that I hope very soon to trouble you with some remaks on the subject generally.

In the meantime I may observe that the expressions of satisfaction which have reached me from *builders* of various parts of the country afford confirmation of the justice of those remarks, which were intended to show the prejudicial effect of false estimates in advancing the real object we all have in view, which is the building of healthy cottages in a substantial manner, at a remunerative price, considering all the interests involved.

Perhaps the fact of my having been a competitor the better qualifies me to speak of the deception practised by competitors, and to assert that it is very easy to draw plans and to build cottages at 200*l*. a pair if the architect foregoes his charges, and the builder the legitimate profits of his trade, though it is not impossible that even if these be given up a loss will still result. I fear in such instances the parties interested look to subsequent contracts to recover their position through the fascinating medium of "*extras*:" at least such is my experience in the numerous opportunities I have had of judging.

J. BAILEY DENTON.

LODGINGS FOR LABOURING MEN.

SIR,—Model cottages cannot supply the want in or near town. Large houses must therefore be used, and I think the best kind of house would be a double one, containing twelve or sixteen rooms; no basement; two front and two back rooms on a floor. The street door to be in the centre, and the staircase just inside, the space for it (12 feet by 6 feet) to be taken off the front rooms instead of the back The advantage of this would be—first, a larger staircase without increase of frontage; secondly, larger back rooms for bed-rooms; thirdly, a better chance of escape in case of fire. Large bed-rooms are much wanted: most families want two bedsteads of some kind, and space is wanted for them as well as for health. The back room to be entered from the front one.

Could not such houses as these be built in the route of the Hammersmith and City and West London railways so as to pay a fair interest?

A MECHANIC'S SON.

CASES UNDER THE METROPOLITAN BUILDING ACT.

DIVISION OF WAREHOUSES.

ON the 5th instant, Messrs. Ashby & Horner, builders, appeared before Mr. Alderman Sidney, at the Guildhall justice-room, at the instance of Mr. Edmund Woodthorpe, district surveyor of the northern division of the City of London, to answer complaint that they had executed certain works to the warehouses Nos. 66 and 67, Aldermanbury, and Nos. 4, 5, and 6, Love-lane, belonging to and in the occupation of Messrs. Baggallays, Westall, & Spence, warehousemen, in contravention of the provisions of the Metropolitan Building Act.

Mr. Woodthorpe conducted the case personally. Mr. Raymond, instructed by Mr. Albert Turner, appeared for the defendants. The facts are as follows: Messrs. Baggallays formerly occupied Nos. 4, 5, and 6, Love-lane only; these houses, though exceeding the prescribed limits for warehouse buildings, having been joined under a former Act of Parliament, and previous to Mr. Woodthorpe's appointment as district surveyor. About nine months since, Messrs. Baggallays purchased the adjoining property, Nos. 66 and 67, Aldermanbury, and entered upon the occupation thereof, but without forming a communication with their former premises. Nos. 66 & 67, Aldermanbury had been already joined, but the lower portion of No. 67 was in a different occupation, and had a separate entrance from the street, without being separated from the upper portion by party arches or fire-proof floor, as required by section 27, rules 2 and 3. On the 1st November, 1862, it was discovered that Messrs. Baggallays had had openings formed to connect the whole of the premises without carrying out the provisions of the Act in respect thereto, and hence these proceedings. The facts were admitted, as also that the buildings contained, together, 323,000 cubic feet.

It was argued by Mr. Raymond, the counsel for the defendants, that the several clauses relating to the uniting of buildings, alone referred to new buildings, the 7th section stating that whenever mention is made of any building, it shall, unless the contrary appears from the context, be deemed to imply a new building; and that there was nothing in the 27th and 28th sections to preclude this reading. Moreover, Messrs. Baggallays being the occupiers on both sides of the wall in question, and in which the openings were made, constituted that wall a cross wall within the meaning of the Act; and though it was originally built for a party-wall, it being intended that the premises on either side should be occupied by different persons, as soon as the occupation became one, the wall practically and legally became a cross-wall, and so was without the jurisdiction of the Act of Parliament.

Mr. Alderman Sidney said that the question resolved itself into one of fact as to the nature of the wall in question; and having only heard evidence that the wall did not change its character on account of the single occupancy, made an order for the several works enumerated in the notice of irregularity to be carried out forthwith. Mr. Raymond took exception to the admission of the evidence, and gave notice of appeal to one of the superior courts.

PATENTS CONNECTED WITH BUILDING.

APPARATUS FOR WARMING APARTMENTS.—*G. Blake.* Dated 13th May, 1862.—In order to present as large a heating surface to the air as possible it is proposed to apply a number of surface plates or partitions *inside* the stove, the air passing through the intervening spaces between such plates or partitions. These stoves may be made of metal, fire-brick, or other suitable material, and the surface plates or partitions may be arranged therein in various ways. The stove may be also so constructed as to derive its heat from steam or hot-water introduced into a space around its exterior.

HOLLOW GLASS WARE.—*A. V. Newton.* A communication. Dated 25th April, 1862.—The nature of the first part of the invention consists in producing a solid wall to a hollow glass lamp bowl, a tumbler, and to other similar pieces of hollow glass ware, with ornaments formed in or on the glass composing the wall at a point intermediate of or between the inner and outer plain surfaces of the wall, by a combination of a pressing and a blowing operation or process. The nature of the second part of the invention consists in the combination of the blowing and pressing processes for the production of glass-lamp pegs and other similar articles, with ornaments on their inner or outer surfaces in a more expeditious and cheap manner than is at present known in the art of glass manufacture. The nature of the third part of the invention consists in a method of producing pressed open-work figures, such as flowers, shelves, and leaves, net-work, and geometrical figures in coloured glass, and uniting the same to various descriptions of glass ware, so as to stand in bas relief. This manufacture combines the pressing and blowing processes, or requires but one or the other of them, according to the character of the article being made, or as the fancy of the operator may dictate.

IMPROVEMENTS IN DRAWING METALS AND IN THE MACHINERY OR APPARATUS EMPLOYED THEREIN.—*L. Christoph, W. Hawskworth,* and *G. P. Harding.* Dated April 10th, 1862.—This relates to a peculiar system or mode of drawing metals, whether of a tubular, hollow, or solid section, and consists in the application to that purpose of hydrostatic pressure, in lieu of the ordinary mechanical power heretofore adopted. In carrying out this invention the patentees employ a hydrostatic cylinder and ram, the gripper bars being secured to the end of the ram, whilst the draw plates or "wordles" are fitted into a suitable support or flange cast on the cylinder.

IMPROVEMENTS IN THE MANUFACTURE OF PORTLAND CEMENT.—*J. Langston.* Dated April 9th, 1862.—Here the patentee employs, in grinding the materials, only so much water as will make a dough or paste, suitable for being at once dried without the separation of water by settling. The drying apparatus he employs consists of ovens heated by furnaces or fire-bars below, and the flues from these furnaces pass over the top of the ovens in the vaulting of the roof. Ovens so arranged will dry the materials more rapidly than the open floors, and with smaller expenditure of fuel. The passing the materials from the grinding apparatus to the drying ovens without the use of the settling ponds renders it necessary that no lumps should be allowed to escape the grinding apparatus; hence he employs, to effect or to complete the grinding rollers, set at a short distance the one from the other, and between which the materials are caused to pass; or a roller revolving at a short distance from a stationary surface may be employed.

IMPROVEMENTS IN ANGLE IRON APPLICABLE TO METALLIC BEDSTEADS, ROOFS, BRIDGES, AND OTHER SIMILAR PURPOSES.—*E. Peyton and W. F. Batho.* Dated April 14th, 1862.—Here the patentees roll or otherwise manufacture angle iron with corrugations, by which they give it additional strength or stiffness, and are thus enabled to use a lighter bulk of metal than at present, thus combining strength with lightness of material, and giving an improved appearance to the object constructed with it, such as metallic bedsteads, roofs, bridges, and similar constructions.

IMPROVEMENTS IN REVOLVING SHUTTERS AND IN MACHINERY FOR PRODUCING THE SAME.—*J. Bunnett.* Dated April 12, 1862.—These shutters are so constructed that they can also be used as venetian blinds. For this purpose such lath is mounted on a central axis, which moves up and down in the grinding shutter grooves. The upper edges of the laths are connected together by hinged flaps. A portion of the inner side of each shutter-pivot turns on pivots; and when it is desired to use the shutter as a venetian blind, this limb of the groove is turned a quarter round, when the laths are free to turn on their axis, and may be set at any required inclination. The winding pulley for raising and lowering the shutter is fitted with a friction wheel or break, which is brought into action on lowering the shutter, but runs free when the shutter is being wound up. In order to give the required curve to the edges of the shutter laths, a bending machine is used, by which both edges of the lath are simultaneously bent to the proper form by dies acted upon by cranks or eccentrics, actuated by steam or other power.

REVOLVING WINDOW SHUTTERS AND BLINDS.—*A. Clarke.*—These improvements in revolving shutters and blinds consist, first, in the application of flat, coiled, or volute steel tempered springs, combined with a barrel or case revolving upon an axis for the purpose of coiling or rolling up the shutters. The second part of the invention refers to mortising holes through the laths of revolving shutters, to receive tapes or steel strips for connecting them together. The third part relates to the manufacture of sash bars and mouldings and brass stall-board plates.

IMPROVEMENTS IN TUMBLER LOCKS.—*G. Hamilton.*—This invention has for its object the so constructing tumbler locks that the proper positions of the tumblers, for allowing the bolt to be shot, may not be detected by applying pressure

to the bolt in the well-known manner. For this purpose, the patentee mounts the tumblers on an eccentric, the pin of which is carried by the case of the lock. The tumblers are each capable of turning around the eccentric; and when the tumblers are correctly set by the key before the bolt is shut back, the eccentric will not be caused to turn on its pin; but when the bolt is pressed back, before the tumblers are correctly placed, the stump upon the bolt will press against the tumblers and cause them to recede; the eccentric, by turning on its pin, allowing them to do so. The turning of the eccentric on its pin he arranges to bring into action a catch or stop for the bolt to come against; and he also arranges the lock so that the bolt, when further pressed on, shall, by acting on the stop, cause the eccentric still further to turn on its pin, and so move back the tumblers away from the stump on the bolt, in order that the stump shall no longer press against them.

Books Received.

Galvanized Iron and its Application. By A. DEMARTEAU, Architect, and Inspector of the Building Department of the South Austrian Railway Company. 1862. Vienna: Rud. Lechner, Bookseller to the University. London: Trübner & Co.

GALVANIZED or zinced iron is making some progress in Austria, as is shown by M. Demarteau's account of it, chiefly as manufactured at the Galvanizing and Lead Works of Gumpoldskirchen.

On the subject of the introduction of corrugated galvanized sheet-iron into Austria, he says:—

"Although Mr. Moritz Löhr, at present counsellor in the ministry of public works, drew the public attention to the highly important employment of corrugated iron in civil engineering, at a meeting of the Polytechnic Society in Vienna, in the year 1843, on his return from England and America; still this material, corrugated iron, was not to be obtained in Austria; and Messrs. Winiwarter's manufactory is up to this time the only one in Austria in which corrugated iron plates are produced. A principal object of the newly-established factory was, to convince the public of the value and durability of galvanized iron sheets; which was the more difficult, as even now, after a period of twelve years, it often occurs, that architects and civil engineers pay no attention to the important difference of the galvanized iron sheets, when compared with zinc sheets, and confound even the names of the two articles.

It seems also to escape notice but too frequently, that zinced sheets are very combustible, and often dangerous to the firemen, from falling sparks during a conflagration; while galvanized iron sheets are perfectly incombustible. Besides, zinced plates are liable to injury from other causes, on account of their softness; while galvanized plates, notwithstanding their lightness and thinness, offer much greater security.

The elongation of zinc in consequence of the increasing temperature must also be taken into consideration; and although wooden laths may be used with advantage, when roofs are covered with zinced sheets, still a similar expedient in the construction of zinc gutters is not possible.

It is well known that, while galvanized iron sheets at an increasing temperature of from 0—80 degrees Reaumure, expand only 1-800th part of the length, zinc sheets at the same temperature expand 1-322nd part of their length and breadth, an elongation which causes injury to the soldered parts of zinc gutters.

In order to prove that galvanized iron sheets are really durable and otherwise suitable material for building purposes, it was necessary to make different trials, and obtain testimonials as to the advantageous application of this article.

Messrs. Winiwarter's endeavours have at last succeeded so far, that the State building authorities in the Austrian provinces now order the application of galvanized iron sheets for the roofs of the larger public buildings.

In the metropolis itself they naturally had greater difficulties to contend with from the competition with other materials and the influence of the agents interested in them."

The treatise is illustrated by engravings, and betokens a thorough knowledge of the subject.

In contrasting tinned iron with the zinced iron, the author remarks that "the covering of tin is a mere mechanical plating on iron sheets and only affords a protection to the iron so long as it remains uninjured; but in the process of galvanisation the zinc unites thoroughly with the iron, and protects it even when the zinc covering becomes injured in any part."

On the application of galvanized corrugated iron plates to the construction of chimneys, he says:—

"Thin galvanized iron sheets have been recommended instead of the thick iron sheets, which are now in use, for the construction of chimneys, the building of which in brick would be attended with great difficulty and expense. Such galvanized chimneys have been made in the form of double tubes: the inner tube is cylindrical, and the outlet for the smoke, whilst the outer tube, made of corrugated iron sheets, is a little conical, and serves as a jacket, inclosing a stratum of air, at least 9 inches thick, which counteracts the considerable cooling observable in all other iron chimneys. Both tubes are firmly connected with one another, giving a stiffness to the chimney which enables it to withstand wind and weather. In Messrs. J. & G. Winiwarter's factory several chimneys of this description have been constructed, from 70 feet to 80 feet high, and an experience of from five to six years shows the best results."

The use of galvanized iron for partition-walls is thus explained:—

"In order to explain the new principle of constructing partition-walls, it must be stated that the galvanized iron is not used in the form of flat sheets, but that for this purpose elliptical pipes, 2½ inches in the oval, and 1 inch broad, are made from the iron sheets, and are then galvanized and put together to any required length, according to the size of the partition. Twisted straw dipped in clay is then bound firmly round the pipes, which are pressed one upon the other, up to the top of the partition-wall, in vertical iron grooves, as will be seen in the figure 22. The partition-wall then receives a coating of common clay on both sides, of a sufficient thickness to form a flat surface; and as soon as this covering is partly dry, it is covered with mortar, and finished off with stucco as in the ceilings of rooms."

Our experience of galvanized iron is as yet but recent, and not wholly satisfactory.

Outlines of Modern Farming. By R. SCOTT BURN, Architect. Vol. I.—Soils, Manures, and Crops. Illustrated. London: Virtue & Co. 1863.

THIS small volume belongs to the rudimentary series for students of agriculture in course of publication by Messrs. Virtue & Co. The author, Mr. Burn, as our readers are aware, has already written several works on agricultural subjects, and is an amateur cultivator of the soil himself. We have no doubt that, notwithstanding his former modest confession of unprofitable amateurship, of which we should be sorry to take advantage in the present instance, this little work will be found to be quite as reliable as such works generally are; although, as he himself remarks in his preface, "agriculture abounds with vexed questions, some of which appear to be as far from settlement as ever, after years of keen and vigorous discussion." Mr. Burn does not affect to settle such questions in this simply rudimentary treatise on soils, manures, and crops. As for the important question of the utilization of town sewage, he proposes hereafter to treat of that, as well as of cottages, and the labour and other questions, and says but little on these subjects in the treatise under notice. Of the little he does say on the town sewage question, we may quote from his present treatise the opinion of an authority as to the dreaded exhaustion of the soil:—

"Duly considering the facts that as much of our town sewage is used directly to the soil; and that as much of it owes its existence to the use of imported corn, which, as it never grew upon, cannot in any way be said to be exhaustive of our soil; and that, moreover, as there is a large field of fertilising substances in the waste products of our manufactures, of the sea, &c.,—Dr. Anderson comes to the conclusion that 'at the present moment we cannot anticipate the exhaustion of the soil;' and that at all events the fact, pregnant as it is with meaning, is patent enough that, 'so far as we at present see, the soil is not becoming exhausted.'"

Specimens of Early French Architecture, selected from the Churches of the Ile de France. By ROBERT J. JOHNSON, M.R.I.B.A. London: 18, Adam-street, Adelphi.

THE last published part of Mr. Johnson's work consists of eight large plates, and includes parts of Rouen Cathedral; Church of St. Leu d'Esserent (half the size would have sufficed for the capitals); Church at Limay (round arched); Notre Dame, Paris; Church of Villars St. Paul (Oise); and choir of St. Germain des Prés, Paris, the modern paintings on the walls being omitted.

VARIORUM.

"Excessive Infant-mortality: How can it be stayed? By M. A. Baines. London: Churchill." This pamphlet contains a paper contributed to the London meeting of the National Social Science Association; and also a short paper reprinted from the *Lancet*, on "Infant Alimentation, or artificial Feeding as a Substitute for Breast-milk, considered in its Physical and Social Aspects." The author agrees with the very general opinion of those who know anything on this latter subject, that "wet-nursing" and "dry-nursing," which so frequently go together, as in cases where a poor woman gives out her own child to dry-nurse while she wet-nurses the child of another woman, are both of them disastrous practices, in a sanitary as well as in a social point of view, and tend not a little to augment the dreadful lists of infant mortality from both extremes of the social scale. The enormous proportion of "still-born" infants he rightly regards as a most suspicious circumstance, and points attention to the remarkable fact that the infant mortality of England far exceeds anything of the kind in any other part of the civilized world. Even China, where infant murder can scarcely be said to be regarded as a crime, ought probably not to be excepted.—"Considerations on the Reform of the Patent Law. By M. A. Soul. London: printed by J. T. Pickburn, Myddelton House, Myddelton-street. 1863." This tract is a reprint from the *Clerkenwell News*, and its author was formerly conductor of the *Artizan*. We may quote his remarks on one important point connected with patents.

"I would now briefly allude to one point, and that is the injury which the public and inventors sustain by persons marking words upon articles, from which it would be supposed that they are the subject of letters patent, when in reality they have either not been thus protected, or the term of protection has expired. By this means a high price is maintained upon the improved contrivance, to the injury of the public; and inventors are ofttimes deterred from introducing further improvements therein. It is not generally known that the Merchandise Marks Act of last session (25 and 26 Vict., cap. 88), provides a remedy for this state of things."

Miscellanea.

MOROCCO.—The Emperor of Morocco is having important works executed at Rabat. A new palace is being built, and an old mosque and the tomb of the Emperor, Sid Mohammed-ben-Abdallah, are being repaired. Round the new palace will be erected extensive barracks for the troops of the garrison, and houses for the principal members of the Government. Those works give reason to suppose that the Emperor intends to make Rabat a third imperial residence.

VIOLET DYE FOR WOOD. — A dyer at Lyons has discovered a method by which wood may be dyed violet. This colour is produced by two immersions — one in iodide of potassium, containing 80 grammes of that ingredient per quart; the other in bichloride of mercury, at the rate of 25 grammes the quart. The wood to be dyed is to be placed in the first bath, where it must remain for some hours. It is then to be immersed in the latter, where it will acquire a bright colour. The dyed wood should afterwards be varnished. The baths may be used several times for a similar purpose.

THE LIVERPOOL ACADEMY.—An announcement was recently made that the Liverpool Academy would not again hold an annual exhibition. The connoisseurs and patrons of the fine arts in Liverpool, however, have resolved not only to sustain the Academy intact, but to enable it to extend its usefulness. In a day or two after the announcement that the Academy was *in extremis*, says the local *Journal*, the sum of 500*l.* was subscribed by a few gentlemen to accomplish this end; and one patron of art placed his name on the list for 100*l.* The movement is still going on. The members of the Academy had determined that rather than incur engagements which might compromise them they would abandon for a time their usual exhibition. This indignity to art will now be spared. Before the competition commenced which has exhausted the Academy's balance at its bankers', it had a handsome surplus fund, which the competition has swept away.

THE BURNING OF THE PLYMOUTH THEATRE. A survey of the Plymouth Theatre, Assembly Rooms, and Royal Hotel, has been made by the town surveyor on behalf of the corporation. The damage caused by the fire is estimated at 5,500*l.* Though the entrance, ladies' dressing-room, refreshment-room, and other rooms immediately connected, are all gone, the interior of the theatre remains to a very large extent uninjured, according to the *Western News*. The preservation of the building is to be ascribed to the good genius of Foulston, the architect. He designed an iron roof, which the trial has proved to be capable of bidding defiance to the ravages of a conflagration. It is formed of hoop iron, arranged in a honeycomb form, and of surprising strength. Though the flames were on all sides it stood the test, and was mainly instrumental in stopping the flames from spreading over the other parts. The seats in the gallery were all destroyed, but here again the wrought-iron girders did good service. Mr. Elliott, builder, who had an intimate knowledge respecting the construction of the theatre, knowing these facts, directed the efforts of the enginemen in a manner which very materially helped to save the place from further destruction. The upper and lower boxes were not injured, and the seats which were removed from the latter are nearly as good as ever. Great efforts have been made, and the theatre, we believe, has been opened again.

buking Martha, Christ raising Jairus's Daughter, and Christ blessing little Children. They are surmounted by a canopy, mixed with foliage decoration, composed of the rose and lily; and the tracery portion is also minutely ornamented. This window is the work of Mr. H. M. Barnett, of Newcastle-upon-Tyne, and is a memorial to the late Miss Simons. On the east gable is another work by this artist, in the form of a wheel window. In the centre of this is the Lamb, surrounded by a circle of radiating branches, set, as it were, with precious stones. Mr. Wailes is at present engaged on another large window for the same church, in memory of Miss Jeffrey. At the west end of the north aisle is placed a stained-glass window. The design consists of two groups—"The Nativity of our Lord," and "The Presentation in the Temple;" above which are canopies. The window is the gift of an artist in the establishment of Mr. Wailes.

Houghton-le-Spring.—A great improvement has been made in the chancel of the parish church by the addition of an inlaid marble reredos, of the diamond pattern, with an ornamented Greek cross in the centre. Its not appearing to have a good finish, remarks the *Gateshead Observer*, induced the rector (who has been at the entire expense) to have a kind of stone frame, with a battlemented top, made for it, and the work was intrusted to Mr. Brookes. The east window is now being filled in with stained glass, by Messrs. Wailes, of Newcastle, the subject being "Our Lord in Glory." The subject includes a large number of figures. Mr. G. Elliott, of Houghton Hall, has been at the sole expense, and the window is to the memory of his daughter, the late Miss E. Elliott.

Silloth.—A new Congregational chapel has been erected and opened at Silloth, according to the *Carlisle Journal*. The building is a brick erection, situate at the south-east of the town, and is capable of accommodating about 250 persons. The chapel is lighted by eight ground-glass windows. The building cost 550*l*.

STAINED GLASS.

Ludlow Church.—Two stained windows have been put up in the east end of the nave of the parish church of Ludlow. Each window is of two lights, and each contains two subjects, viz., in the one to the left, the call of Peter, "Follow me," and Christ's charge to Peter, "Feed my Lambs;" in the one to the right hand, "The Conversion of Saul," and "Paul before Agrippa." Messrs. Edmundson & Son, of Manchester, were the artists.

Cowfold Church (*Sussex*).—This church has recently been adorned with two memorial windows of stained glass. Of that in the chancel, the subjects are three events in the history of Our Lord immediately after his resurrection, viz., His appearing to Mary in the garden; His being known at Emmaus by the breaking of bread; and the incredulity of St. Thomas. This window is in memory of the late Mrs. White, of Wooldringfold, in this parish. The window in the south aisle is in memory of the late Mr. John Grimshaw, also of this parish. The subject of it is "The Ascension."

St. Martin's, Blue Pitts (*near Rochdale*).—Messrs. Edmundson & Son have just completed and fixed two windows in St. Martin's new church. One is in the nave, and put up chiefly at the expense of the sunday scholars connected with the church, to the memory of Job Sheppherd, late a teacher in the school. The subjects are "The Raising of the Widow's Son," and "Christ's Charge to Peter." In the tracery is an angel bearing scroll, with memorial inscription, and texts at bottom. The other is behind the font, and contains "The Presentation in the Temple," and "Christ Blessing Little Children." In the tracery are "The Crossing of the Red Sea," and "Destruction of Pharaoh's Host," as an emblem of baptism. It is the gift of Mr. Ernest Bates, architect of the church, and brother to the Rev. Joseph Bates, the incumbent.

SCHOOL-BUILDING NEWS.

Notting-hill.—The new national schools in connexion with St. James's, Notting-hill, have been formally opened by the Bishop of London. The schools were for a lengthened period carried on in Kensington Potteries. The new building is capable of accommodating 450 children. The cost, including the site, has been about 2,100*l*. Of this sum 1,480*l*. have been raised by voluntary contributions.

Manningham.—The foundation-stone of new schools, to be built in connexion with Greenfield Independent chapel, Manningham, has been laid. The site of the proposed building is at the south-east side of the chapel, and comprises an area of 290 square yards, exclusive of the playgrounds. The building will be two stories in height, the principal front and entrances facing Lumb-lane, and will be erected in the Early English style of architecture, corresponding with that of the adjoining place of worship. On the groundfloor there will be a meeting-room for members of the congregation, 35 feet by 20 feet; an infants' school, 35 feet by 16 feet; three class-rooms, and separate entrances and staircases for boys and girls. The upper school-room will be 35 feet by 40 feet, 27 feet 6 inches high to the apex of the roof timbers, which will be of an ornamental character, exposed to view, and stained and varnished. Four class-rooms will be formed at one end of this room, being separated from it by means of low partitioning. The room will be lighted partly from above, but chiefly by four triplet lancet windows; and heated, as also the rooms below, by a hot-water apparatus. The schools will accommodate 350 children. The cost, including fittings, will be about 1,000*l*., towards which subscriptions to the amount of 620*l*. have been promised. Messrs. Andrews and Delaunay are the architects, and the following are the contractors:—Masons, Messrs. Bell & Farnish; joiner, Mr. Gill; plasterer, Mr. Kitchenman; plumber, Mr. J. Schofield; slater, Mr. Hill.

Newhall (*Derbyshire*).—New National Schools, for boys, girls, and infants, with two class-rooms and a residence for the master, are about to be erected near the centre of the village, on a new site, which has been given by the Earl of Chesterfield. The architect is Mr. Nicholas Joyce, of Burton-on-Trent and Stafford.

White Colne.—A new day-school is about to be erected at the above place, under the direction of Mr. Henry W. Hayward, of Colchester. Mr. Rogers, of Earl's Colne, is the builder employed.

DAIRY ARRANGEMENTS.

VALUE OF DRYNESS.

LECTURING recently on cheese-making, Professor Voelcker said, as to the arrangements of the dairy,—You will not expect me, of course, to enter into all those minute practical arrangements which every dairy-woman carries out in the mode best adapted for her own comfort. No very general rule can be laid down as to the best practical arrangement, which is generally that which is the handiest; and as some persons are left-handed, and others right-handed, we cannot lay down invariable rules applicable for each. Follow that arrangement which is most handy for you, would be the general advice I would give to every one. But yet there are some points which admit of a philosophical explanation. For instance, the aspect of the dairy should be north, if possible, for this reason, that a north aspect will bring dry and cold air into the dairy, and keep it cool. But it is not merely the low temperature which a dairy that looks towards the north has, that is so beneficial to the keeping of butter and the making of cheese, but also because such dairies are generally drier. And this is a very important consideration; for, after all, it is not so much the high temperature of the dairy that spoils the cheese, and causes it to become sour and hard, as the condition of the atmosphere as regards dryness or dampness. In a damp or wet dairy you generally find a disagreeable smell all through the place; and in such a dairy it is next to impossible to make first-rate cheese. Whereas dairies that are celebrated amongst the dealers for their high qualities of cheese are generally dry: no matter whether it be cool or moderately warm, it is the damp that spoils the cheese more than anything else.

When going through Cheshire, in visiting the celebrated dairy which produced the prize cheese at the time of the Royal Agricultural Society's meeting, at Chester, at Riddeley Hall, a dairy which is presided over in the most admirable manner by Mrs. Willis, I was much struck in finding a perfectly dry room, and the utmost care used to prevent any damp in any shape coming into the dairy. She would not allow any one to bring the milk in. The servants, by a very simple arrangement, poured the milk through a sort of funnel, connected with a tube from the outside, into the cheese vat. They were not allowed to enter with their wet, and, perhaps, dirty boots, but delivered the milk outside the door. Then all the servants were obliged to wear pattens,—a very excellent plan. You never ought to let any one go in with a damp pair of boots on. If by any accident milk was spilt, there was not a pail of water thrown over it to wash it off, but a dry cloth was used. She assured me that she had never done any scrubbing, except when they made no cheese, and then she would not make any cheese for a week or so, until she was perfectly sure the ground was dry again. In other dairies in Gloucestershire and Cheshire, as well as in Derbyshire too, I found invariably a damp floor in dairies, where cheese fetched from 8s. to 10s. per cwt. less than good cheese-makers got for their cheese; and I acquired so much practical experience in this matter (I may say so without presumption), that I could venture to make a very good guess as to what description of cheese is made on a particular farm without seeing the cheese, and even without seeing the dairy: you may blind my eyes and lead me into the dairy, but you must not shut my nose. I will not, of course, say under all circumstances that I should be able to smell the good cheese, but I can smell the bad one; and this bad smell, the sour, peculiar, damp, muffy smell (I don't know whether that term is understood), that musty, damp smell is very characteristic of bad cheese. For it is productive of a peculiar kind of ferment, or taint; and we know how very little of such taint is sufficient to give a bad quality to the cheese. Tainted meat can be produced in a damp cellar, even in cold weather, in a short time; whereas when meat is hung up even at a high temperature in a current of air, it will keep in good condition for a long time. This shows the influence of damp upon cheese. We are then, by all means, to avoid a damp place. Sometimes people are afraid that by building their dairies above ground they get them too warm. But it is clear that it is better to have a warmish place than a damp one. If a damp place must be put up with, I would recommend an increase of temperature, thus keeping it as dry as possible by artificial heat.

LECTURES ON SCULPTURE.

AT the London Institution, Professor Westmacott, R.A., is delivering a course of four lectures on "Sculpture." The first lecture, given on the 5th instant, treated of the distinction to be observed in addressing professional and non-professional audiences; theory and practice; importance of a knowledge of true principles to those who would be judges of art; the great object of sculpture among the ancients; classed as mythological or religious, heroic, commemorative, portrait late; the beautiful; review of the more important ancient schools, and notice of their decline. In the second, given on the 12th, the professor spoke of the total change in the art-impulse of the moderns, and its causes; the dark ages of art, and its revival; religious (Christian) sculpture; change to the pseudo-Classical; with a review of the leading sculptors of Italy from the twelfth to the eighteenth century. The third lecture, to be delivered on the 19th, will treat of ecclesiastical and monumental sculpture, as a special phase of art; its great interest, and its practice in England; promise of excellence—how disappointed; decline of fine art incorrectly attributed to the Reformation; false principles introduced in Italy, and their spread throughout Europe. In the fourth, on Monday, the 26th, he will speak of sculpture in the present century and age; future prospects; principles as yet undefined; sentiment, and high motive; imitation; realism and idealism; artifices to attract attention; ignorance of the public, in matters of taste, the opportunity of pretenders, whether artists or amateurs; the remedy; and then give a general explanation of the practice of sculpture, including modelling, carving, moulding, and casting. The lectures are given extempore, with illustrations; by which means the attention of the audience is kept more fully alive than by the reading of a discourse.

RAILWAY MATTERS.

THE site decided on for the construction of the new railway docks at Milford Haven is upon or near the estuary known as Neyland-hill, at its junction with Milford Haven near to the South Wales Railway Company's station of New Milford, at Burton, in Pembrokeshire, with branch railways thereto, and all the requisite pier, dock, and warehouse accommodation. Powers will be taken to adopt both the broad and narrow gauge. The estimated expenses of the docks is 190,000*l*., and of the railways, 30,000*l*.

A new station is being built by the Midland Railway Company at Peterborough. It is being erected on the site of the Crescent Station. There

is likely to be a good deal of work here next summer. A new college and Independent chapel are to be built, as well as new houses; a great deal of building land having been bought by the Freehold Land Society for building purposes. The Great Northern Company are also going to make considerable alterations; having just bought the estate of Mr. Thomas Hill. Fifty-one lots of building land have been sold. The land is situate in Eastgate, where new houses are likely soon to spring up.

The Blyth and Tyne Railway Company have erected a new station adjoining the Tynemouth-road, North Shields, to the east of the House of Correction. The station, which is a brick building, with stone facings, comprises ladies' first-class waiting-room, and a general waiting-room and booking-office.

The traffic receipts of railways in the United Kingdom amounted for the week ending the 3rd of January, on 10,584 miles, to 483,396*l.*; and for the corresponding week of last year, on 10,193 miles, to 460,796*l.*; showing an increase of 391 miles, and of 22,600*l.* in the receipts. The gross receipts on the fourteen principal railways amounted in the aggregate on 7,268 miles, to 380,942*l.*; and for the corresponding week of 1862, on 7,008 miles, to 364,713*l.*, showing an increase of 260 miles, and of 16,229*l.* in the receipts.

ORNAMENTATION OF WINDOWS BY THE TRANSFER PROCESS OF DIAPHANIE.

IN the year 1857, a French lithographic firm first attempted to print, by new processes in lithography, designs in colours sufficiently solid and transparent for the decoration of glass. More recently they have made many improvements. We have before us one of the first sheets printed, and some of the latest; and the advance is striking.

The original method of using these printed designs was to varnish them thoroughly, and affix them to the glass with gum or other cement. The improvement in the application of these designs consists in permanently fixing the coloured surface to the glass, and then removing the paper upon which they are printed. This is now rendered very easy; and glass thus decorated certainly has a very striking effect, while the cost is comparatively trifling.

The work is so simple that it may be done by any person with ease, although the arrangement of the design for a proposed window requires some taste, and a proficient will always excel. Briefly this is the process:—Make a careful drawing of the proposed decoration on paper, or adopt those which are sold for the purpose; marking out where the subject, border, and grounding join with a double line, say about an eighth of an inch in width; then lay the glass upon the pattern, and cement over the double lines a strip of tin foil previously cut to the proper width. Having finished this the coloured surface of the subject, border, &c., is to be cemented to the glass in the places already marked out by the tin foil, which it should overlap a little. Allow the work to harden for a day or two. The paper is then to be damped and rubbed off with a piece of sponge or flannel: a slight coating of the clearing liquid (which is a thin varnish) is passed over the back of the design, and a coating of very hard copal varnish completes the work. In cases where one sheet fills exactly the window, the tin-foiling may be dispensed with. Messrs. Barnard & Son, of Oxford-street, have published a little sixpenny pamphlet, which contains lithographic plates of the designs alluded to, and may be usefully consulted.

SAFETY FOR MINERS.

THE public mind, painfully excited by the numerous recent cases of explosion in coal-mines, attended with more or less fatal results, has within the last few weeks been again shocked by the account of the dreadful catastrophe at Edmund's Main. The so frequent occurrence of this description of accident proves, beyond dispute, that the present means employed to prevent such disasters is, at the best, of very imperfect effect. Every thinking man sitting by his fireside can hardly fail to remember that while he is reaping every benefit to be derived from the invaluable mineral coal, he does this too often at the price of the very lives of the hardy men who toil in the mines to procure it. Is it necessary that this should be so? I will with deference say that it is not. If I may venture to say so, this coal was stored up for the use of man by the Architect of the Universe. Man has been gifted with reasoning faculties which should enable him to counteract the risks which, without due precaution, must occur in gaining coal. Let us see whether he has taken the steps which seem best calculated to ensure safety.

The present, as it appears to me most primitive and most inefficient method, I will endeavour briefly to describe. Most persons are aware that the only access to a mine is down a narrow well or shaft, sometimes of small depth, and sometimes many hundred feet deep. This well or shaft is divided into two parts by a partitioning of timber, from the top to the bottom. The partitioning is technically called "bratticing," a term now almost as familiar to the general reader as mine or shaft. The various partitions in the workings of the mine are also called by the same name, brattice, or bratticing. I will suppose, merely for simplicity, that there is only one "main" or horizontal layer of coal at the bottom of the shaft. From this point at the bottom of the shaft the layer of coal is worked in all directions, often to a distance of many thousand feet from the shaft. The shaft has to provide for the conveyance of mineral to the surface; of men and horses up and down; to find room for the pumping apparatus; and above all is the sole means of ventilation to a series of workings several hundred feet below the surface of the earth, and extending over many thousand square yards. I only propose here to speak of the all-important service—ventilation. One of the divisions of the shaft before alluded to is called the "main," or "down shaft," the other the "upcast" shaft. The "down" shaft is the medium by which fresh air is conveyed from the surface of the earth: the "upcast" shaft is that which conveys from the mine the gases evolved and the vitiated air. In the upcast shaft, generally at or near the bottom, is placed a large furnace, which, by heating and rarefying the air, causes it to rush up that shaft, air from the mine rushing forward to supply its place. The air to furnish this supply finds its way by the down or main shaft; and is compelled, by appropriate bratticing, to traverse the various workings of the mine, and so to ventilate them. But can it be a matter of surprise, when we consider that in a large mine these workings always extend to very many thousand feet of intricate passages, that the power of the furnace is insufficient to keep up a sufficient draught through the complicated workings? I can only say, for my own part, I should be very much surprised if such an arrangement were found to be effective; and I will proceed to give what I am sure would prove an efficient plan. The cost would not be great; but, should the expense of working a large mine be somewhat greater on the following plan, I contend that the miners have a right to stipulate for the greatest amount of safety that can be secured by any reasonable expenditure. An addition of cost to the price of coal, of 3d. or 4d. per ton, would probably amply cover any such expenditure; and I am certain the public would gladly pay that increase of price upon the understanding that the life of the miner was duly cared for.

The plan I suggest is, to employ the shaft solely as a downcast shaft, and to provide for the upcast draught by artesian borings, as nearly as possible at the extremities of the various workings. It is well known that the expense of a boring, as compared with a shaft, is trifling, and would not be very material in the expenditure of a large mine. But the borings once made, I should not rely upon the furnace system for maintaining a draught; but the borings should be in communication with a vacuum, maintained by power, either exhausting cylinders or discs, as found most desirable. The borings should be lined with cast-iron tubing, unless the nature of the strata should be such as to render that course unnecessary. In very many mines one or two such borings, of 12 inches in diameter, would thoroughly ventilate the mine. It is not at all necessary that the exhaust-chamber should be at or near the top of the borings: communications with a central pumping-station may obviously be made by pipes laid on the surface of the ground. I think that the proposed plan is so simple, and so certain of operation, that I sincerely trust some coal-owner will at once give it a fair trial.

The present bungling and imperfect furnace plan, I contend, must be abandoned for the greatly improved one which modern mechanical science has rendered not only possible, but easy of attainment. This is not a subject I have taken up at a moment's notice, but one which has occasionally occupied my attention for some years; and I trust you will think, with me, that the influential columns of the *Builder* cannot be better occupied than by drawing public attention to a plan calculated most materially to lessen the risk to which the coal-miner is at present exposed.

THOS. A. COTCHETT.

ADULTERATION OF WHITE LEAD.

SIR,—Perhaps many of your readers may not be aware of the extent to which white lead is at present adulterated with barytes,—a very heavy white earth, an oxide of barium. This substance is said to be valuable in the manufacture of fine earthenware; but, in reality, very large quantities are ground in oil, and sold in barrels at about 4*l.* 10*s.* a ton, as a substitute for, or to mix with, white lead. Some of the painters in Glasgow use it constantly. It is also used by some masons in their putty for joints in ashlar work.

This mineral is extensively wrought at Muirshields, near Lochwinnock, in Renfrewshire; also in the island of Arran. At the former place extensive works are in operation for grinding and bleaching it. The working of this mineral must be a valuable source of revenue to the proprietors, who, of course, cannot help its being put to bad uses. After the paint has been used the adulteration is difficult to detect *at first*, especially in flat tints (that is, when unglazed); but, of course, it *very soon* appears. The presence of barytes in oil paint may be detected by rubbing the paint between the finger and thumb for a little time, when it becomes *granular*; whereas, white lead paint does not. Barytes in place of white lead, and petroleum in place of turpentine, account for low estimates and bad work. By the way, can any of your readers say whether petroleum really discolours light tints, when used in paint instead of turpentine?

DETECTOR.

COTTAGE BUILDINGS AND SANITARY APPLIANCES.

SIR,—At the recent discussion of this subject at the Society of Arts, reported in the *Builder*, Mr. Godwin very justly observed "that if labourers cannot pay such rent as will secure to them a proper home, they are not getting out of the land a proper sustenance and that provision for shelter which they are entitled to receive." Men working on the land are, in many cases, hedged in by the law of settlement to a limited market for their labour; and they are generally men deficient in adaptability of mind and body to take their labour into channels where it would be useful and profitable to others, and consequently more remunerative to themselves; but I cannot agree with the gentlemen who set forth that the labouring classes generally are in this matter powerless to help themselves. There are many thousands of artisans and mechanics earning wages amply sufficient to command suitable and desirable homes. We see large and most magnificent productive establishments, maintained almost wholly by the labouring classes. There are the acres of breweries, the costly spirit palaces: an abundance of capital readily flows to the production of any necessary or luxury for which the labouring population evidence a persistent demand. The mistake appears to be that we are endeavouring to move in this matter without the co-operation of the labouring class. We are repeating the mistake made by Government in introducing sanitary improvements. They sought to force them on the cities and towns before the residents were educated to the want of them; and so excited their strenuous opposition, instead of securing their cordial co-operation.

We are leaving the labouring classes in ignorance on the subject, and endeavouring to prevail on the landlord class to take sanitary improvements to them. What is the consequence? We have not the co-operation of those we are seeking to benefit; and to carry out the matter without their co-operation will be impracticable, however desirable the landlord class may be to accomplish it. They will be over-weighted in the attempt. We cannot estimate the present labouring population of England and Wales at less than thirteen millions. We may estimate their house-rental to be something over one pound per head per annum—say thirteen millions; but half as much again must be paid to cover the interest on the outlay that is required to make their dwellings such as we desire. Instead of an average of five pounds per house, the average must be seven pounds ten shillings per house. The lowest estimate, therefore, we can make of the desired improvements is an annual cost of six millions five hundred thousand pounds. Can we hope that landlords will make this sacrifice for the benefit of the labourers?

It appears to me, Mr. Editor, we must begin at the other end. We must educate the labouring class to a knowledge of the importance to their well-being of light, ventilation, and cleanliness: we must teach them the attendant circumstances that lead to debility and fever: we must awaken in them the desire for health-conducing homes. At present we are endeavouring to call forth a supply of such dwellings artificially. We are seeking to supply the food before the appetite is created. We should create first the desire for homes of this class: from this will grow a demand; and when the labouring class are willing to pay for improved dwellings a rental that will leave a profit to those who supply them, they will not have long to wait for them. At present cottages are let in the country at prices that do not pay for the ground they occupy and the cost of erection. In cities and towns cottage-rental is so irregularly paid, and the damage committed on the property is so continuous and excessive, that the supply has very generally fallen into the hands of needy men, seeking high interest at great risk and great personal trouble.

In my own immediate neighbourhood (Corsham) there are men earning wages ranging from 24s. to 30s. per week, who are content to domicile their families in houses that cost them about 2s. per week; and it is notorious that there are at the present time thousands of mechanics and artisans in this country earning wages ranging from 4s. to 7s. per day, who are content to domicile their families in dwellings which cost them from 2s. to 4s. per week rental, while it is equally notorious that they spend on gin, beer, and tobacco, for their own personal consumption, three times the amount that they devote to secure a dwelling. Wages generally are one-third higher than they were seven years ago. Meat, butter, and cheese, a little dearer; bread and clothes not dearer; neither is more spent on rent. How is the increased rate of wages disposed of? In many cases four days' work instead of six, and more beer. Let us hasten to create amongst them nobler wants; to leave them no longer content with impure air, impure water, badly-cooked food, with a damp, ill-drained, ill-lighted, ill-ventilated dwelling, insuring a debilitated condition of body that will enervate the mind, and beget a craving for stimulants, to purchase which will absorb a large portion of their earnings, leaving the least possible amount for food, clothing, and cleanliness.

There are now many useful publications of which we may avail ourselves in disseminating sanitary truths. One of the most effective of these is the publication you so ably conduct. Beyond this, and to reach a humbler class of labourers, there are household tracts for the people:—"The Worth of fresh Air," "The Use of pure Water," "The Value of good Food," "The Influence of wholesome Drink," "The Value of a well-trained Mind."

When we have taught them the value of sanitary improvements, they will then anxiously desire them: instead of an inert mass which we cannot move, we shall then have three millions of sons of toil ready to co-operate with us.

No emperor has such an army: neither North nor South can command such a phalanx. Effecting it in this way we not only insure the desired result the most certainly, but we shall also elevate the character of the labourer, and prepare him for other desirable efforts. Cultivate first in the labouring classes an appreciation of the benefits, a knowledge of their value, and your humble neighbours will then work out their own improvements more surely, more effectually, and far more beneficially, than we can do for them. With the desire to enjoy, and the capability to pay, the question will become simply one of demand and supply.

JAMES S. RANDELL.

COST OF COTTAGES.

ABSENCE from town has prevented me seeing *The Builder* of last week, in which a letter appeared from Mr. Ross, and in which my name is mentioned.

Not having time to explain as fully as I should wish the motives which instigated me to say what I did at the Society of Arts, I will content myself by stating that I hope very soon to trouble you with some remaks on the subject generally.

In the meantime I may observe that the expressions of satisfaction which have reached me from *builders* of various parts of the country afford confirmation of the justice of those remarks, which were intended to show the prejudicial effect of false estimates in advancing the real object we all have in view, which is the building of healthy cottages in a substantial manner, at a remunerative price, considering all the interests involved.

Perhaps the fact of my having been a competitor the better qualifies me to speak of the deception practised by competitors, and to assert that it is very easy to draw plans and to build cottages at 200*l.* a pair if the architect foregoes his charges, and the builder the legitimate profits of his trade, though it is not impossible that even if these be given up a loss will still result. I fear in such instances the parties interested look to subsequent contracts to recover their position through the fascinating medium of "*extras*:" at least such is my experience in the numerous opportunities I have had of judging.

J. BAILEY DENTON.

LODGINGS FOR LABOURING MEN.

SIR,—Model cottages cannot supply the want in or near town. Large houses must therefore be used, and I think the best kind of house would be a double one, containing twelve or sixteen rooms; no basement; two front and two back rooms on a floor. The street door to be in the centre, and the staircase just inside, the space for it (12 feet by 6 feet) to be taken off the front rooms instead of the back. The advantage of this would be—first, a larger staircase without increase of frontage; secondly, larger back rooms for bed-rooms; thirdly, a better chance of escape in case of fire. Large bed-rooms are much wanted: most families want two bedsteads of some kind, and space is wanted for them as well as for health. The back room to be entered from the front one.

Could not such houses as these be built in the route of the Hammersmith and City and West London railways so as to pay a fair interest?

A MECHANIC'S SON.

CASES UNDER THE METROPOLITAN BUILDING ACT.

DIVISION OF WAREHOUSES.

ON the 5th instant, Messrs. Ashby & Horner, builders, appeared before Mr. Alderman Sidney, at the Guildhall justice-room, at the instance of Mr. Edmund Woodthorpe, district surveyor of the northern division of the City of London, to answer complaint that they had executed certain works to the warehouses Nos. 66 and 67, Aldermanbury, and Nos. 4, 5, and 6, Love-lane, belonging to and in the occupation of Messrs. Baggallays, Westall, & Spence, warehousemen, in contravention of the provisions of the Metropolitan Building Act.

Mr. Woodthorpe conducted the case personally. Mr. Raymond, instructed by Mr. Albert Turner, appeared for the defendants. The facts are as follows: Messrs. Baggallays formerly occupied Nos. 4, 5, and 6, Love-lane only; these houses, though exceeding the prescribed limits for warehouse buildings, having been joined under a former Act of Parliament, and previous to Mr. Woodthorpe's appointment as district surveyor. About nine months since, Messrs. Baggallays purchased the adjoining property, Nos. 66 and 67, Aldermanbury, and entered upon the occupation thereof, but without forming a communication with their former premises. Nos. 66 & 67, Aldermanbury had been already joined, but the lower portion of No. 67 was in a different occupation, and had a separate entrance from the street, without being separated from the upper portion by party arches or fire-proof floor, as required by section 27, rules 2 and 3. On the 1st November, 1862, it was discovered that Messrs. Baggalays had had openings formed to connect the whole of the premises without carrying out the provisions of the Act in respect thereto, and hence these proceedings. The facts were admitted, as also that the buildings contained, together, 323,000 cubic feet.

It was argued by Mr. Raymond, the counsel for the defendants, that the several clauses relating to the uniting of buildings, alone referred to new buildings, the 7th section stating that whenever mention is made of any building, it shall, unless the contrary appears from the context, be deemed to imply a new building; and that there was nothing in the 27th and 28th sections to preclude this reading. Moreover, Messrs. Baggallays being the occupiers on both sides of the wall in question, and in which the openings were made, constituted that wall a cross wall within the meaning of the Act; and though it was originally built for a party-wall, it being intended that the premises on either side should be occupied by different persons, as soon as the occupation became one, the wall practically and legally became a cross-wall, and so was without the jurisdiction of the Act of Parliament.

Mr. Alderman Sidney said that the question resolved itself into one of fact as to the nature of the wall in question; and having only heard evidence that the wall did not change its character on account of the single occupancy, made an order for the several works enumerated in the notice of irregularity to be carried out forthwith. Mr. Raymond took exception to the admission of the evidence, and gave notice of appeal to one of the superior courts.

PATENTS CONNECTED WITH BUILDING.

APPARATUS FOR WARMING APARTMENTS.—*G. Blake.* Dated 13th May, 1862.—In order to present as large a heating surface to the air as possible it is proposed to apply a number of surface plates or partitions *inside* the stove, the air passing through the intervening spaces between such plates or partitions. These stoves may be made of metal, fire-brick, or other suitable material, and the surface plates or partitions may be arranged therein in various ways. The stove may be also so constructed as to derive its heat from steam or hot-water introduced into a space around its exterior.

HOLLOW GLASS WARE.—*A. V. Newton.* A communication. Dated 25th April, 1862.—The nature of the first part of the invention consists in producing a solid wall to a hollow glass lamp bowl, a tumbler, and to other similar pieces of hollow glass ware, with ornaments formed in or on the glass composing the wall at a point intermediate of or between the inner and outer plain surfaces of the wall, by a combination of a pressing and a blowing operation or process. The nature of the second part of the invention consists in the combination of the blowing and pressing processes for the production of glass-lamp pegs and other similar articles, with ornaments on their inner or outer surfaces in a more expeditious and cheap manner than is at present known in the art of glass manufacture. The nature of the third part of the invention consists in a method of producing pressed open-work figures, such as flowers, shelves, and leaves, net-work, and geometrical figures in coloured glass, and uniting the same to various descriptions of glass ware, so as to stand in bas relief. This manufacture combines the pressing and blowing processes, or requires but one or the other of them, according to the character of the article being made, or as the fancy of the operator may dictate.

IMPROVEMENTS IN DRAWING METALS AND IN THE MACHINERY OR APPARATUS EMPLOYED THEREIN.—*L. Christoph, W. Hawskworth,* and *G. P. Harding.* Dated April 10th, 1862.—This relates to a peculiar system or mode of drawing metals, whether of a tubular, hollow, or solid section, and consists in the application to that purpose of hydrostatic pressure, in lieu of the ordinary mechanical power heretofore adopted. In carrying out this invention the patentees employ a hydrostatic cylinder and ram, the gripper bars being secured to the end of the ram, whilst the draw plates or "wordles" are fitted into a suitable support or flange cast on the cylinder.

IMPROVEMENTS IN THE MANUFACTURE OF PORTLAND CEMENT.—*J. Langston.* Dated April 9th, 1862.—Here the patentee employs, in grinding the materials, only so much water as will make a dough or paste, suitable for being at once dried without the separation of water by settling. The drying apparatus he employs consists of ovens heated by furnaces or fire-bars below, and the flues from these furnaces pass over the top of the ovens in the vaulting of the roof. Ovens so arranged will dry the materials more rapidly than the open floors, and with smaller expenditure of fuel. The passing the materials from the grinding apparatus to the drying ovens without the use of the settling ponds renders it necessary that no lumps should be allowed to escape the grinding apparatus; hence he employs, to effect or to complete the grinding rollers, set at a short distance the one from the other, and between which the materials are caused to pass; or a roller revolving at a short distance from a stationary surface may be employed.

IMPROVEMENTS IN ANGLE IRON APPLICABLE TO METALLIC BEDSTEADS, ROOFS, BRIDGES, AND OTHER SIMILAR PURPOSES.—*E. Peyton and W. F. Batho.* Dated April 14th, 1862.—Here the patentees roll or otherwise manufacture angle iron with corrugations, by which they give it additional strength or stiffness, and are thus enabled to use a lighter bulk of metal than at present, thus combining strength with lightness of material, and giving an improved appearance to the object constructed with it, such as metallic bedsteads, roofs, bridges, and similar constructions.

IMPROVEMENTS IN REVOLVING SHUTTERS AND IN MACHINERY FOR PRODUCING THE SAME.—*J. Bunnett.* Dated April 12, 1862.—These shutters are so constructed that they can also be used as venetian blinds. For this purpose such lath is mounted on a central axis, which moves up and down in the grinding shutter grooves. The upper edges of the laths are connected together by hinged flaps. A portion of the inner side of each shutter-pivot turns on pivots; and when it is desired to use the shutter as a venetian blind, this limb of the groove is turned a quarter round, when the laths are free to turn on their axis, and may be set at any required inclination. The winding pulley for raising and lowering the shutter is fitted with a friction wheel or break, which is brought into action on lowering the shutter, but runs free when the shutter is being wound up. In order to give the required curve to the edges of the shutter laths, a bending machine is used, by which both edges of the lath are simultaneously bent to the proper form by dies acted upon by cranks or eccentrics, actuated by steam or other power.

REVOLVING WINDOW SHUTTERS AND BLINDS.—*A. Clarke.*—These improvements in revolving shutters and blinds consist, first, in the application of flat, coiled, or volute steel tempered springs, combined with a barrel or case revolving upon an axis for the purpose of coiling or rolling up the shutters. The second part of the invention refers to mortising holes through the laths of revolving shutters, to receive tapes or steel strips for connecting them together. The third part relates to the manufacture of sash bars and mouldings and brass stall-board plates.

IMPROVEMENTS IN TUMBLER LOCKS.—*G. Hamilton.*—This invention has for its object the so constructing tumbler locks that the proper positions of the tumblers, for allowing the bolt to be shot, may not be detected by applying pressure

to the bolt in the well-known manner. For this purpose, the patentee mounts the tumblers on an eccentric, the pin of which is carried by the case of the lock. The tumblers are each capable of turning around the eccentric; and when the tumblers are correctly set by the key before the bolt is shut back, the eccentric will not be caused to turn on its pin; but when the bolt is pressed back, before the tumblers are correctly placed, the stump upon the bolt will press against the tumblers and cause them to recede; the eccentric, by turning on its pin, allowing them to do so. The turning of the eccentric on its pin he arranges to bring into action a catch or stop for the bolt to come against; and he also arranges the lock so that the bolt, when further pressed on, shall, by acting on the stop, cause the eccentric still further to turn on its pin, and so move back the tumblers away from the stump on the bolt, in order that the stump shall no longer press against them.

Books Received.

Galvanized Iron and its Application. By A. DEMARTEAU, Architect, and Inspector of the Building Department of the South Austrian Railway Company. 1862. Vienna: Rud. Lechner, Bookseller to the University. London: Trübner & Co.

GALVANIZED or zinced iron is making some progress in Austria, as is shown by M. Demarteau's account of it, chiefly as manufactured at the Galvanizing and Lead Works of Gumpoldskirchen.

On the subject of the introduction of corrugated galvanized sheet-iron into Austria, he says:—

"Although Mr. Moritz Löhr, at present counsellor in the ministry of public works, drew the public attention to the highly important employment of corrugated iron in civil engineering, at a meeting of the Polytechnic Society in Vienna, in the year 1849, on his return from England and America; still this material, corrugated iron, was not to be obtained in Austria; and Messrs. Winiwarter's manufactory is up to this time the only one in Austria in which corrugated iron plates are produced. A principal object of the newly-established factory was, to convince the public of the value and durability of galvanized iron sheets; which was the more difficult, as even now, after a period of twelve years, it often occurs, that architects and civil engineers pay no attention to the important difference of the galvanized iron sheets, when compared with zinc sheets, and confound even the names of the two articles.

It seems also to escape notice but too frequently, that zinced sheets are very combustible, and often dangerous to the firemen, from falling sparks during a conflagration; while galvanized iron sheets are perfectly incombustible. Besides, zinced plates are liable to injury from other causes, on account of their softness; while galvanized plates, notwithstanding their lightness and thinness, offer much greater security.

The elongation of zinc in consequence of the increasing temperature must also be taken into consideration; and although wooden laths may be used with advantage, when roofs are covered with zinced sheets, still a similar expedient in the construction of zinc gutters is not possible.

It is well known that, while galvanized iron sheets at an increasing temperature of from 0—80 degrees Reaumure, expand only 1-800th part of the length, zinc sheets at the same temperature expand 1-322nd part of their length and breadth, an elongation which causes injury to the soldered parts of zinc gutters.

In order to prove that galvanized iron sheets are really durable and otherwise suitable material for building purposes, it was necessary to make different trials, and obtain testimonials as to the advantageous application of this article.

Messrs. Winiwarter's endeavours have at last succeeded so far, that the State building authorities in the Austrian provinces now order the application of galvanized iron sheets for the roofs of the larger public buildings.

In the metropolis itself they naturally had greater difficulties to contend with from the competition with other materials and the influence of the agents interested in them."

The treatise is illustrated by engravings, and betokens a thorough knowledge of the subject.

In contrasting tinned iron with the zinced iron, the author remarks that "the covering of tin is a mere mechanical plating on iron sheets and only affords a protection to the iron so long as it remains uninjured; but in the process of galvanisation the zinc unites thoroughly with the iron, and protects it even when the zinc covering becomes injured in any part."

On the application of galvanized corrugated iron plates to the construction of chimneys, he says:—

"Thin galvanized iron sheets have been recommended instead of the thick iron sheets, which are now in use, for the construction of chimneys, the building of which in brick would be attended with great difficulty and expense. Such galvanized chimneys have been made in the form of double tubes: the inner tube is cylindrical, and the outlet for the smoke, whilst the outer tube, made of corrugated iron sheets, is a little conical, and serves as a jacket, inclosing a stratum of air, at least 9 inches thick, which counteracts the considerable cooling observable in all other iron chimneys. Both tubes are firmly connected with one another, giving a stiffness to the chimney which enables it to withstand wind and weather. In Messrs. J. & G. Winiwarter's factory several chimneys of this description have been constructed, from 70 feet to 80 feet high, and an experience of from five to six years shows the best results."

The use of galvanized iron for partition-walls is thus explained:—

"In order to explain the new principle of constructing partition-walls, it must be stated that the galvanized iron is not used in the form of flat sheets, but that for this purpose elliptical pipes, 2½ inches in the oval, and 1 inch broad, are made from the iron sheets, and are then galvanized and put together to any required length, according to the size of the partition. Twisted straw dipped in clay is then bound firmly round the pipes, which are pressed one upon the other, up to the top of the partition-wall, in vertical iron grooves, as will be seen in the figure 22. The partition-wall then receives a coating of common clay on both sides, of a sufficient thickness to form a flat surface; and as soon as this covering is partly dry, it is covered with mortar, and finished off with stucco as in the ceilings of rooms."

Our experience of galvanized iron is as yet but recent, and not wholly satisfactory.

Outlines of Modern Farming. By R. SCOTT BURN, Architect. Vol. I.—Soils, Manures, and Crops. Illustrated. London: Virtue & Co. 1863.

THIS small volume belongs to the rudimentary series for students of agriculture in course of publication by Messrs. Virtue & Co. The author, Mr. Burn, as our readers are aware, has already written several works on agricultural subjects, and is an amateur cultivator of the soil himself. We have no doubt that, notwithstanding his former modest confession of unprofitable amateurship, of which we should be sorry to take advantage in the present instance, this little work will be found to be quite as reliable as such works generally are; although, as he himself remarks in his preface, "agriculture abounds with vexed questions, some of which appear to be as far from settlement as ever, after years of keen and vigorous discussion." Mr. Burn does not affect to settle such questions in this simply rudimentary treatise on soils, manures, and crops. As for the important question of the utilization of town sewage, he proposes hereafter to treat of that, as well as of cottages, and the labour and other questions, and says but little on these subjects in the treatise under notice. Of the little he does say on the town sewage question, we may quote from his present treatise the opinion of an authority as to the dreaded exhaustion of the soil:—

"Duly considering the facts that as much of our town sewage is used directly to the soil; and that as much of it owes its existence to the use of imported corn, which, as it never grew upon, cannot in any way be said to be exhaustive of our soil; and that, moreover, as there is a large field of fertilising substances in the waste products of our manufactures, of the sea, &c.,—Dr. Anderson comes to the conclusion that 'at the present moment we cannot anticipate the exhaustion of the soil;' and that at all events the fact, pregnant as it is with meaning, is patent enough that, 'so far as we at present see, the soil is not becoming exhausted.'"

Specimens of Early French Architecture, selected from the Churches of the Ile de France. By ROBERT J. JOHNSON, M.R.I.B.A. London: 18, Adam-street, Adelphi.

THE last published part of Mr. Johnson's work consists of eight large plates, and includes parts of Rouen Cathedral; Church of St. Leu d'Esserent (half the size would have sufficed for the capitals); Church at Limay (round arched); Notre Dame, Paris; Church of Villars St. Paul (Oise); and choir of St. Germain des Prés, Paris, the modern paintings on the walls being omitted.

VARIORUM.

"Excessive Infant-mortality: How can it be stayed? By M. A. Baines. London: Churchill." This pamphlet contains a paper contributed to the London meeting of the National Social Science Association; and also a short paper reprinted from the *Lancet*, on "Infant Alimentation, or artificial Feeding as a Substitute for Breast-milk, considered in its Physical and Social Aspects." The author agrees with the very general opinion of those who know anything on this latter subject, that "wet-nursing" and "dry-nursing," which so frequently go together, as in cases where a poor woman gives out her own child to dry-nurse while she wet-nurses the child of another woman, are both of them disastrous practices, in a sanitary as well as in a social point of view, and tend not a little to augment the dreadful lists of infant mortality from both extremes of the social scale. The enormous proportion of "still-born" infants he rightly regards as a most suspicious circumstance, and points attention to the remarkable fact that the infant mortality of England far exceeds anything of the kind in any other part of the civilized world. Even China, where infant murder can scarcely be said to be regarded as a crime, ought probably not to be excepted.—"Considerations on the Reform of the Patent Law. By M. A. Soul. London: printed by J. T. Pickburn, Myddelton House, Myddelton-street. 1863." This tract is a reprint from the *Clerkenwell News*, and its author was formerly conductor of the *Artizan*. We may quote his remarks on one important point connected with patents.

"I would now briefly allude to one point, and that is the injury which the public and inventors sustain by persons marking words upon articles, from which it would be supposed that they are the subject of letters patent, when in reality they have either not been thus protected, or the term of protection has expired. By this means a high price is maintained upon the improved contrivance, to the injury of the public; and inventors are ofttimes deterred from introducing further improvements therein. It is not generally known that the Merchandise Marks Act of last session (25 and 26 Vict., cap. 88), provides a remedy for this state of things."

Miscellanea.

MOROCCO.—The Emperor of Morocco is having important works executed at Rabat. A new palace is being built, and an old mosque and the tomb of the Emperor, Sid Mohammed-ben-Abdallah, are being repaired. Round the new palace will be erected extensive barracks for the troops of the garrison, and houses for the principal members of the Government. Those works give reason to suppose that the Emperor intends to make Rabat a third imperial residence.

VIOLET DYE FOR WOOD. — A dyer at Lyons has discovered a method by which wood may be dyed violet. This colour is produced by two immersions — one in iodide of potassium, containing 80 grammes of that ingredient per quart; the other in bichloride of mercury, at the rate of 25 grammes the quart. The wood to be dyed is to be placed in the first bath, where it must remain for some hours. It is then to be immersed in the latter, where it will acquire a bright colour. The dyed wood should afterwards be varnished. The baths may be used several times for a similar purpose.

THE LIVERPOOL ACADEMY.—An announcement was recently made that the Liverpool Academy would not again hold an annual exhibition. The connoisseurs and patrons of the fine arts in Liverpool, however, have resolved not only to sustain the Academy intact, but to enable it to extend its usefulness. In a day or two after the announcement that the Academy was *in extremis*, says the local *Journal*, the sum of 500*l.* was subscribed by a few gentlemen to accomplish this end; and one patron of art placed his name on the list for 100*l.* The movement is still going on. The members of the Academy had determined that rather than incur engagements which might compromise them they would abandon for a time their usual exhibition. This indignity to art will now be spared. Before the competition commenced which has exhausted the Academy's balance at its bankers', it had a handsome surplus fund, which the competition has swept away.

THE BURNING OF THE PLYMOUTH THEATRE. A survey of the Plymouth Theatre, Assembly Rooms, and Royal Hotel, has been made by the town surveyor on behalf of the corporation. The damage caused by the fire is estimated at 5,500*l.* Though the entrance, ladies' dressing-room, refreshment-room, and other rooms immediately connected, are all gone, the interior of the theatre remains to a very large extent uninjured, according to the *Western News*. The preservation of the building is to be ascribed to the good genius of Foulston, the architect. He designed an iron roof, which the trial has proved to be capable of bidding defiance to the ravages of a conflagration. It is formed of hoop iron, arranged in a honeycomb form, and of surprising strength. Though the flames were on all sides it stood the test, and was mainly instrumental in stopping the flames from spreading over the other parts. The seats in the gallery were all destroyed, but here again the wrought-iron girders did good service. Mr. Elliott, builder, who had an intimate knowledge respecting the construction of the theatre, knowing these facts, directed the efforts of the enginemen in a manner which very materially helped to save the place from further destruction. The upper and lower boxes were not injured, and the seats which were removed from the latter are nearly as good as ever. Great efforts have been made, and the theatre, we believe, has been opened again.

TEWKESBURY TOWN SURVEYORSHIP. — At a meeting of the local Board of Health for the election of a town surveyor, in the place of Mr. T. Freeman, resigned, three candidates presented themselves; Messrs. G. Howell, T. P. Holder, and F. Thomas. Mr. Howell was elected.

REMOVAL OF NEW PALACE-YARD. — A large number of workmen have been set to work to pull down the two or three remaining houses which stand eastward of the King's Arms Hotel, in Palace-yard, in order to carry out, as far as possible, the new approach to the Houses of Parliament from the end of Westminster-bridge before the commencement of the session.

SANITARY CONDITION OF DUNDEE. — At a recent meeting of the local police commissioners, the reports by the sub-committee of the sanitary committee were read. They revealed a state of matters requiring instant attention throughout the whole town, such as the filthy condition of closes, pends, lanes, streets, and common stairs; the want of public halting-places and other conveniences; the foulness of drains, &c. After some discussion, in course of which it was admitted by various members of the commission that Dundee was one of the dirtiest towns in Scotland, though so situate as to be capable of being made one of the cleanest; the reports were referred back to the sanitary committee to carry out the recommendations as expeditiously as possible.

METROPOLITAN BENEFIT SOCIETIES' ASYLUM. The inmates of this institution in the Ball's Pond-road were recently regaled with the annual dinner there. Mr. Morrell presided, and the committee, wives, and friends attended, all heartily enjoying themselves and partaking of tea. The committee having arranged, with praiseworthy liberality, for a series of free lectures on Wednesday evenings in the chapel, the Rev. Mr. Pilkington, of St. Jude's Chelsea, gave the first on the 7th instant, with magic-lantern views, on Egypt and the Holy Land, to a crowded audience. The next lecture was by the Rev. Mr. Hunt, of Christ Church, Hoxton, upon Bernard Palissy, the Huguenot potter; and the third (on the 21st instant) will be on "An Excursion on the Continent," by the Rev. W. Holmes.

MANCHESTER SELF-SUPPORTING COOKING DEPÔT. This institution, in Ancoats, is in the centre of a populous district inhabited almost entirely by the working class, and was opened on Saturday, the 3rd instant. The objects of the institution are stated on a board in the dining-hall to be "the supplying of well-cooked and wholesome food both to persons in the hall, and also at their own homes. The defective cooking in cottages and the absence of suitable places for men to dine in who are employed at a distance from their homes, have suggested this establishment." The arrangements comprise a dining-hall for men, and another for women; a counter at which food is sold for home consumption; store-rooms for materials, and modern and complete cooking apparatus. The prices and general plan are those of Mr. Corbett, of Glasgow, the tariff ranging from a penny to twopence. The Rev. Canon Richson, M.A., and others, have promoted this desirable aid to the operatives. Other institutions of a similar character are in beneficial operation in other parts of Manchester, established by Mr. John Pender, M.P.; by Mr. Birley; by Mrs. Eadson Wilkinson; by Mr. Clarke; and by Miss Hilton.

MONUMENTAL.—Mr. Marshall Wood has received a commission to execute a colossal marble bust of the Prince of Wales, to be placed in the Townhall, Manchester, and for which his Royal Highness has granted Mr. Wood the necessary sittings.——A statue to the late Lord Cockburn, the eminent Scotch barrister and judge, has just been placed in the Parliament House, Edinburgh. The statue, which is erected by subscription, is from the chisel of Mr. W. B. Brodie, R.S.A. It is a full-length figure, in the robe of Solicitor-General. The figure is placed a little to the right of Roubilliac's famous statue of Lord President Forbes. The old Parliament House of Scotland (which has been since the Union an adjunct to the law courts) has now a series of seven statues, those of Lord Jeffrey and Lord President Boyle, by Steell, being (excepting Cockburn) the latest additions.——Mr. Steell's model of the statue of Sir David Baxter, bart., which is to be erected in the Pavilion of the Baxter-park, at Dundee, although not quite completed, is sufficiently advanced to give an idea of the artistic design. Sir David is represented standing with a plan of the park in his hands, as if in the act of presenting it to the town. The costume is that of our own time, with just sufficient drapery to give the requisite strength.

HOTEL PROFITS.—It has been stated in more than one quarter that the Great Western Hotel, Paddington, will this year pay to the shareholders the enormous dividend of 45 per cent. If this be the case, it is quite time the prices were lowered there.

BAVARIAN PENCILS.—A letter from Nuremburg, in Bavaria, says:—"Our pencils have obtained the first prize at the Exhibition of London. No branch of industry in our city has taken such an extension as this manufacture. We possess about twenty large factories, employing about 5,000 workmen, who produce annually 216 millions of pencils, representing a value of three millions of florins (6,400,000 fr.)."—*Galignani.*

ACCIDENTS.—A house has fallen in at Beaumont-place, Euston-road. It had been in a dangerous state for some time. Several labourers were set to work to remove the *débris*, and it was discovered that fortunately no lives were lost. Orders were immediately given for an adjoining house to be pulled down, as it appeared in a very tottering state.——The remarkable escape of a workman is reported from Blackburn. He slipped from the roof of a house, where he had been at work, and fell a height of 22 feet. Fortunately, his foot caught a projection from the window and saved his fall, the worst consequences of it being a broken arm.

SOCIETY FOR THE ENCOURAGEMENT OF THE FINE ARTS.—The fifth session of this society was inaugurated last week with a *conversazione* at the rooms of the Arundel Society, in Old Bond-street. The attendance was numerous. In addition to the works of early Italian art, published by the Arundel Society, the walls displayed several of the works by water-colour painters produced in aid of the Lancashire Relief Fund, and of Bedford's photographs, taken during the Prince of Wales's tour in the East. The report of the council gave a satisfactory account of the condition of the society. The members now nearly numbered 350, and the financial statement showed a surplus to begin the year. The proceedings of the evening were enlivened by a miscellaneous musical performance.

KILKENNY ARCHÆOLOGICAL SOCIETY. — The annual meeting of this active and thriving Society was held on the 7th inst., the Very Rev. the Dean of Ossory, president of the Society, in the chair; when eight new members were elected; and the report of the committee for the past year was read by the Rev. James Graves, the honorary secretary and treasurer. The report noticed the fact, that from 1849 to 1862 inclusive, no fewer than 1,401 members had been elected. Of this number, however, 749 had "fallen away, having resigned, died, or become hopeless defaulters," and of the last and not quite reputable order of quasi members some complaint of "laziness" in meeting their very small archæological liabilities is made in the report. Various presentations were made at the meeting, and objects of interest reported on or described.

GLASGOW ARCHÆOLOGICAL SOCIETY.—The usual monthly meeting of this society was held on Monday, the 5th instant, Mr. Sheriff Strathern, V.P., presiding, when the following papers were read:—I. "Note on the Discovery of a Vitrified Fort at Portencross, Ayrshire," by Mr. William Keddie. II. "On Excavations among the Stone Circles on the Island of Arran," by Dr. Bryce. III. "Historical Notes on the Modes of Ancient Interment," by Dr. Scoular. Dr. Bryce exhibited a skull, an urn, and numerous flint arrow heads, found in the course of his excavations. His discoveries seemed to demonstrate that, whatever else these monuments may have been intended for, they were undoubtedly used as places of sepulture, the dispositions of the stones having always, apparently, reference to a cist in the centre of the circle.

ELECTRO-TELEGRAPHIC ORGANIZATION IN FRANCE FOR POLITICAL PURPOSES.—On the 14th ult. the first essays of the great system of telegraphic organization, conceived by M. de Vougy, director of telegraphs, were to be put in execution all over the French empire. Henceforward each sous-prefecture will deposit its despatches in the chief town of the department, or will correspond with any of the sous-prefectures through the medium of the prefecture. Thus it is arranged that each prefecture will be put in direct communication with the neighbouring prefectures and with Paris; or, where the telegraphic wires are extended to great distances, with the principal towns of France, and as far as the very frontiers. When the group will be completely terminated, each chief town of a canton will communicate with its chief town of arrondissement or chief town of prefecture by the intermediary of the sous-prefecture.

CHRISTCHURCH ARCHÆOLOGICAL SOCIETY.—The annual meeting of the Christchurch Association was held at the town-hall, on Wednesday, 7th. After electing several new members, the hon. secretary (the Rev. Mackenzie Walcott) read a paper on Romsey Abbey. A paper sent by Mr. B. Ferrey, architect, was also read to the meeting.

ARSENICAL PAPER-HANGINGS.—A Warrington correspondent, who signs his communication "S. Chandley," protests against the total disuse of arsenical green in paper-hangings. He admits that exceptional cases have occurred, as where children have torn off and eaten such papers; but doubts the truthfulness and discretion of sensational alarms as to alleged fatalities attendant on the mere sleeping or living in rooms containing such papers, which fatalities seem to him inconsistent with the fact that paperhangers engaged in putting them on, and rubbing them over all day long, do not appear to suffer from such floating atoms of arsenic in the atmosphere as are imagined and dreaded. For our own part, we so far agree with our correspondent in thinking that it is just possible the alarm has gone too far in regard to the evil effects of breathing an atmosphere where arsenical colours are present in a room; but that serious evils have been proved to have arisen from the use of such colours there can be no doubt. Our correspondent remarks, in conclusion, that it is only necessary to "avoid bright loose greens, as all others contain comparatively little arsenic, or none at all; and if they did, being satin or glazed, no arsenic could escape in sufficient quantities to injure the most sensitive or delicately constituted among us." A new colour as a substitute for arsenic was lately spoken of.

TENDERS.

For the erection of four Slaughter-houses, and one boiler-house, for the Ruath Local Board of Health, Cardiff. Mr. John Williams, Surveyor to the Board, Architect:—

Watkins	£325	0	0
Jefferies	318	0	0
Shepton	289	0	0
Evans	284	0	0
Harris	273	0	0
Davies	270	0	0
Facey	268	0	0
Moore	269	0	0
Stride	265	0	0
John	239	0	0
Purnell	237	0	0
Price (accepted)	235	0	0

For Sewer Works and Tanks, Local Board of Health, Croydon. Mr. James Fenton, engineer. The sewer to be 5,800 feet, 2-feet barrel drain, 4½-inch work, ½-inch radiated brick; the other half in stocks, in Roman cement and sand. Average depth, 7 feet, including five man-holes, 24 inches by 22 inches: 9-inch work in cement. The following is a list of Tenders, which stand in abeyance:—

	Sewers.	Tanks.
Kettle & Co.	£1,940 0 0	£1,017 0 0
Noyes	1,620 0 0	985 0 0
Barnes	1,284 0 0	..
Bell	1,263 0 0	..
Porter	1,261 0 0	985 0 0
Harlock	1,254 5 8	757 0 0
Kent	1,253 0 0	889 0 0
Bagland	1,250 0 0	930 0 0
Bennett	1,225 16 4	1 112 18 0
Rowe	1,169 0 0	889 0 0
Johnson	1,146 11 4	..
Harris	1,145 0 0	848 0 0
Brock	1,116 4 9	..
Potter	1,094 0 0	837 0 0
Heywood	955 0 0	720 0 0
Leek	901 13 8½	816 15 6
Holledge	..	864 0 0

For the construction of 2,107 feet in length of brick sewer, 3 feet 9 inches by 2 feet 6 inches, with other works in connexion therewith, on the West-end Estate, &c., for the Vestry of St. John, Hampstead. Mr. John Douglas, Surveyor to the Vestry:—

Sims	£3,812	0	0
Johnson	1,555	0	0
Scrivener & White	1,375	0	0
Yeoman	1,359	0	0
Crockett	1,350	0	0
Abbott & Hopwood	1,290	0	0
Rowe	1,279	0	0
Watts	1,243	0	0
Bugbird (accepted)	1,240	0	0

For a public Market and Assembly-room, at Southmolton, North Devon. Mr. W. F. Cross, Architect:—

		Deduct for an old building.
Dunn & Co.	£10,403	..
Moass & Son	7,200	£100
Pollard	6,883	175
Thomas & Smith	6,795	105
Cock, jun.	6,677	110

TO CORRESPONDENTS.

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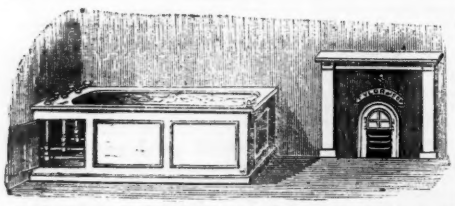

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